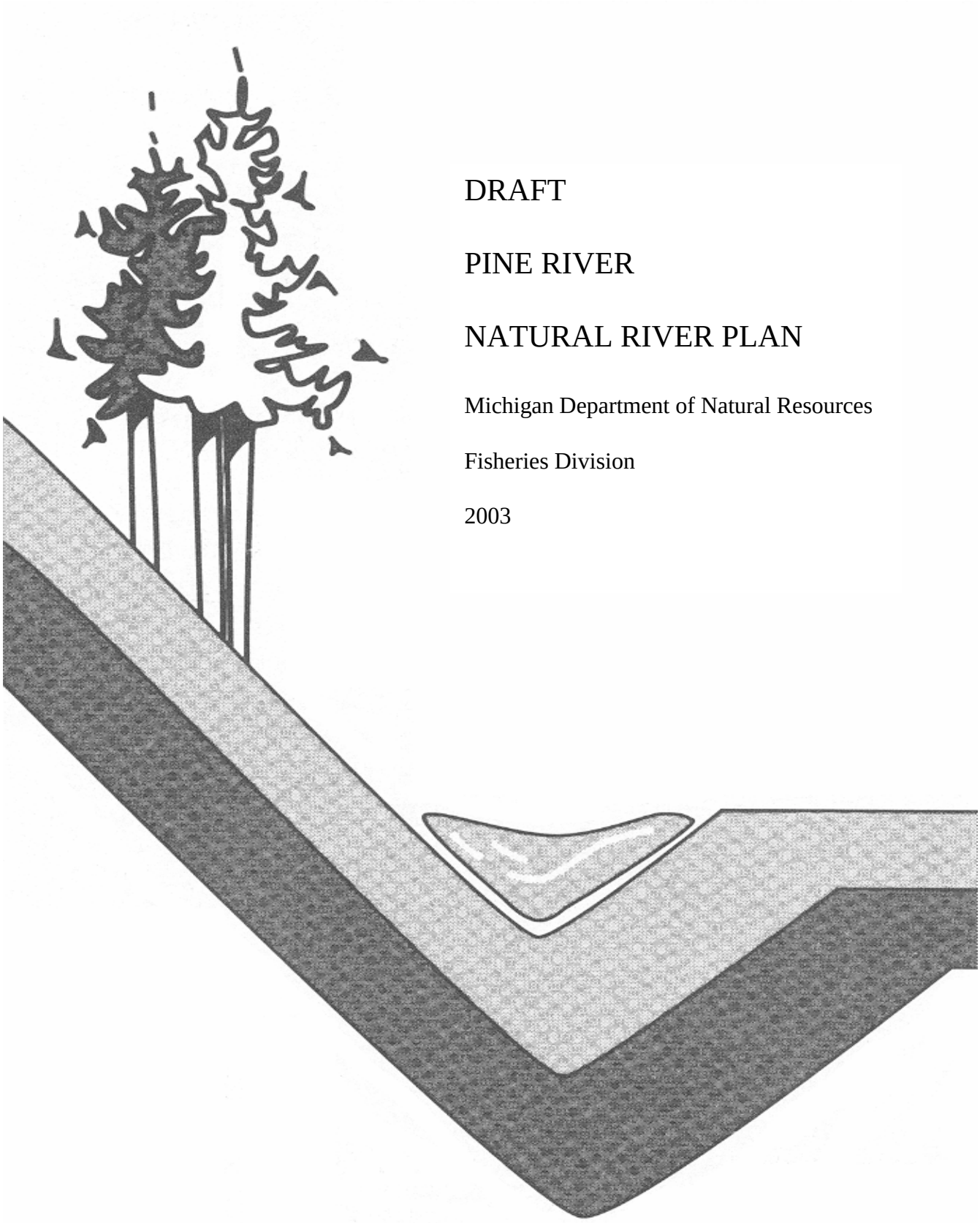

DRAFT

PINE RIVER

NATURAL RIVER PLAN

Michigan Department of Natural Resources

Fisheries Division

2003

DRAFT

ACKNOWLEDGEMENTS

The Pine River Citizens Advisory Group spent nearly three years in monthly meetings helping the DNR develop this draft Natural River Plan for the Pine River system. DNR would like to thank all the group members for the time and effort they put into this planning process. It should be noted that not all Advisory Group members agreed with all of the recommendations in this plan. Following is a list of citizens who were active members of the Pine River Citizens Advisory Group at some time during the planning process (**bold type** indicates an active member at the time of the most recent Advisory Group meeting).

Pine River Citizens Advisory Group

Jeff Beilfus, **Roger Beilfus, Jim Bernier, Jeff Bothee,** Thomas Bowes**, Stephen Bowyer**, James Carr, **David Clark, Iris Davidson, Fred Goetz, Matt Gray, David Groenleer, Lou Helder, Tom Jobson**, Matt Johnstone, Gene Jurik, **Gary Marek**, Kris Martinson, **Jim Maturen**, Kurt Meister, Michael Michel, **Mark Miltner, Vord Nelson**, Ray Schmidt, **Richard Shotwell**, Gary Swiger, **Howard Thompson, Alan Van Antwerp**.

Tom Rozich of Michigan Department of Natural Resources' Fisheries Division was the primary author of Fisheries Division's Manistee River Assessment. Much of the background watershed information in this document was gathered from that document.

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INTRODUCTION

The Pine River system is a resource of national significance. The river and its adjoining lands are highly valued for the abundant and diverse fishery, scenic beauty, many miles of floatable waters, excellent game and non-game wildlife populations, camping, hiking and other recreational opportunities, historical significance and outstanding opportunities for private residential development. Because of these characteristics, the river system is experiencing increasing pressures from recreational users and development interests that threaten to forever alter the natural character of the river.

Under provisions of Natural Rivers Part 305 of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, the Michigan Department of Natural Resources (DNR) is authorized to establish a system of designated "Natural Rivers" to provide for the protection and reasonable use of our finest river systems. To help protect the values of the Pine River system, it is recommended that the Pine River and many of its tributaries be designated as Natural Rivers under provisions of Part 305. All stream segments are recommended for designation in the "Wild-Scenic" classification. A **"Wild-Scenic" River** is defined as having a wild character with wild or forested borders, in close proximity to human development. The wild aspect may be relatively broad or confined to a narrow corridor.

The Department of Natural Resources has developed this management plan for the Pine River system as part of the designation process. This report provides a description of the physical characteristics of the river and its adjoining lands, cultural features of the river system and factors affecting its future nature and use.

The report also outlines a plan for the protection of the Pine River system. Through implementation of local and State zoning ordinances and rules based on the plan, along with proper management of public lands and programs, the Pine River Natural River Plan will serve as a basis for preserving and enhancing the rivers' values for water conservation, their free-flowing condition and their fish, wildlife, boating, scenic, aesthetic, historic and recreational values and uses.

I. PINE RIVER WATERSHED

A. *THE WATERSHED*

The Pine River watershed is located in the northwestern portion of Michigan's lower peninsula. It has a drainage area of 265 square miles, and ultimately discharges to Tippy Dam Impoundment in Manistee County (Figure 1). The watershed includes parts of four counties: Wexford, Osceola, Lake and Manistee. The mainstream is approximately 49 miles long and is formed by the confluence of the North Branch and East branch of the Pine River near Tustin in Osceola County at an elevation of 1,102 feet (336m). The North Branch headwaters are just south of Cadillac in Wexford County, while the east branch headwaters are north of Tustin. From this point the river meanders southerly until it reaches the Osceola-Lake county line. Here, the river turns and meanders northwesterly until it reaches Tippy Dam Impoundment and the Manistee River. Along the way, the river is fed by many tributaries, most of which are high quality trout streams. The river discharges to Tippy Dam Impoundment at an elevation of 685 feet (209m), resulting in a total drop in elevation from the headwaters to the mouth of 417 feet, an average of 8.5 feet per mile.

B. *CLIMATE*

The watershed offers a climate typical of Michigan's "north country" that is strongly affected by Lake Michigan. The warm days and cool nights offer a pleasant summer haven for residents and tourists. Winter's abundant snowfall provides excellent conditions for skiing, snowmobiling, and other winter sports.

Mean January and July temperatures are 17.4 and 58.7 degrees F, respectively. The average low temperature for January is 10.4 degrees F, while the average high temperature for July is 80.2 degrees F. The average length of growing season is 121 days.

The summer season yields 34 percent of the annual precipitation, with another 30 percent occurring during the fall. The low occurs in February with an average monthly yield of 1.44 inches. Annual precipitation averages 32.04 inches.

C. *TRANSPORTATION AND AREA GOVERNMENT*

One major US highway, US 131, currently crosses the headwaters area of the watershed. This is a limited-access highway from southwest Michigan to just north of Cadillac, crossing the East Branch of the Pine River and several tributaries.

Several state highways traverse the river or tributaries in various parts of the watershed, including M-37 in Wexford County and M-55 and M-115 in Wexford and Manistee counties. In addition, many paved and unpaved year-round county roads, as well as seasonal roads and two-tracks, are present in all counties.

Commercial airline service is available at Traverse City, north of the watershed. Although there are rail lines in the watershed, no passenger rail service is available.

The watershed includes portions of four counties and 14 townships, although 2 of those townships have no appreciable stream mileage. Incorporated municipalities in the watershed include Tustin and Leroy.

D. ***GEOLOGICAL HISTORY***

The predominating historical influence on the Pine River is, of course, its geologic background. The unique conditions left by the Pleistocene glaciers that advanced and retreated from this portion of Michigan's Lower Peninsula provided the ecological framework for the plant and animal communities in the watershed. Many of the characteristics that make this river system worthy of consideration for Natural River designation are directly attributable to the porous nature of the glacial outwash deposited between the Lake Border and Port Huron Moraine.

Meltwaters pouring off the Port Huron ice sheet carved out two large discharge channels running east and west. The present-day Manistee River "under-fits" the westerly channel, resulting in the appearance of a large river valley and delta formed by a relatively small river. The Au Sable River occupies the easterly channel, discharging to Lake Huron at Oscoda.

E. ***HISTORICAL HUMAN INFLUENCES***

Earliest archaeological evidence of human inhabitants dates to the Paleo-Native American period, over 10,000 years ago. These were nomadic people who followed herds of game animals. By 500 BC, there was a change to a more sedentary lifestyle as people established camps for a season or more and agricultural practices were developed.

Ninety-seven archeological sites are listed in the watershed (Table 1). Actual scholarly study of the Pine River archaeology has been limited.

Prior to European exploration in the first half of the 1600's, Native American tribes including the Ottawas, Potawatomis and Chippewas used the Manistee River watershed and its resources. The Native American "Manistee River" name has several documented meanings, including "river at whose mouth are islands," "river with white bushes along the banks," "crooked river," and "spirit of the woods."

Many area tribes intentionally burned certain areas in the watershed to manage habitat and vegetation types. This activity likely stopped near the time of the first European exploration when French explorers came to the region, primarily motivated by the fur trade (Jean Nicolet, in 1634, is thought to be the first white man to visit northern Michigan). The tribes built no large permanent settlements, but traveled to stations throughout the Pine River watershed to hunt, fish and gather the region's rich plant resources. They continued these activities throughout the French and British regimes in Michigan, spanning the years roughly between 1634 and 1812.

In 1760, the English took control of northern Michigan from the French. The newly formed United States of America laid claim to the former French and British colonial territories in the Great Lakes region in 1776. The Ordinance of 1787, which settled the terms of peace between Great Britain and the United States, allowed the British to retain their Michigan posts until 1796. However, the British remained at their posts long past that date. On April 3, 1802, an Act of Congress created the State of Ohio, also making Michigan part of the Territory of Indiana. A January 1805 Act of Congress provided for the organization of the Territory of Michigan. Ottawas, Chippewas and Potawatomis joined with Tecumseh and the British in an unsuccessful effort to repel the U.S. during the war of 1812. On October 13, 1813 General Lewis Cass was appointed Civil Governor of Michigan Territory. He created the first county, Michilimackinac, bounded on the east by the Cheboygan River, the south by the Manistee River, the west by the Manistique River, and by Canada on the north.

In 1821 and again in 1836, Ottawa bands living along the Manistee ceded title to their lands to the United States. By 1830, the Government Land Office survey of Michigan had begun, creating the township, range, and section system we now have. Prior to this time, the Manistee River watershed was still relatively undeveloped by non-natives. In 1837 came statehood for Michigan and in 1840, the creation of counties as we know them today.

Non-natives were late in developing the watershed, in part due to a large sand bar at the Manistee River's mouth, and also due to the high gradient waters located not far upstream (the present site of Tippy Dam). In 1854-55, a canal was dug through the sand bar allowing the rapid settlement of the City of Manistee and subsequent timber harvest and log drives that had a profound impact on the river system. The interior portion of the watershed was not logged until after 1870, as the river was choked with logjams.

The onset of the logging era began what may have been the greatest human influence on the river system. Large-scale removal of logs changed fisheries and wildlife habitat and the very character of the area. The loggers not only removed numerous logjams and large woody debris from the stream channel, they rolled logs down the banks (the "rollways") and drove them to market in the spring. Without trees to stabilize the exceptionally sandy soils in the area, huge amounts of sediment entered the river. Although erosion and sediment transport are natural functions in a stream environment, such a massive artificial influx of additional sediment often overwhelms natural stream processes. Once in the stream, the increased sediment load begins to affect the aquatic environment. The deposition of sand and sediment along the stream bottom causes the stream to overflow its banks. As this occurs, sediment begins to flow laterally and cover the edges of the stream. As the sediment builds up, the stream channel begins to braid, forming several channels in a wider, flatter area. Stream temperatures rise, and fish lose valuable habitat for feeding, resting, and spawning. These effects can be observed on the Pine River.

From the early 1840's to 1940, the lifestyles of the Native American people, and thus their influence on the river, underwent several changes due in part to the increased presence of non-natives. After the 1855 Treaty of Detroit, Ottawas formed new permanent agricultural settlements south of the watershed. By the late 1870s, many Ottawas had sold or lost title to their lands, and migrated to the outskirts of newly formed towns or more isolated areas, still

primarily relying on the natural resources of the area to earn a living. From the 1890s to 1940, Indian Village in Brown Township on the Manistee River served as a center of the traditional Little River Ottawa band gathering, fishing and trapping economy.

In 1900, the Manistee River was proclaimed Michigan's last great "un-harnessed" river, capable of producing 40,000 horsepower of electricity. Stronach Dam on the Pine River was the first hydroelectric dam on the system, being completed in 1912. Stronach Dam originally supplied power to the City of Manistee. The Michigan Railway Company acquired the project around 1915, with the intention of supplying power to a proposed electric railway. Consumers Power Company acquired the project in 1917 after the electric railway plans were abandoned and operated the plant until July 8, 1953. Tippy Dam was completed and began producing power in 1918. Tippy Dam was then called Junction Dam, being at the confluence of the mainstream and South Branch Manistee, as the Pine River was formerly called.

The construction of these and other smaller dams had a great influence on the river system. Dams have a variety of effects on river ecosystems. They influence flow patterns and alter channel cross-sections. They fragment the river system, blocking drift and migration by fish and other aquatic organisms. They change river temperatures (making some areas unsuitable for native fish to survive), increase evaporation and reduce stream flow, disrupt sediment and woody debris transport and modify water quality. They can also cause significant direct fish mortalities. Impoundments also result in a loss of riverine habitat and the subsequent changes in fish and aquatic invertebrate populations. The Pine River shows all of these effects.

The onset of the "modern age" saw a restructuring of the economic and social order in many communities, native and non-native, and with it new influences of the watershed. With lesser reliance on the natural resources of the area for subsistence, increased agricultural, urban and residential uses began to have a greater impact.

From 1933 to 1942, enrollees in the many Civilian Conservation Corps camps in the Pine River watershed had a significant impact on the river system. Reforestation efforts by the corps helped hasten recovery from the devastating logging activities of the recent past. Many erosion control and habitat structures were constructed during this time. The corps also planted millions of fish in area streams, fought forest fires and built many area campgrounds.

Oil and gas exploration also began in the watershed in the 1930's. The majority of early development occurred in Osceola and Lake counties during the 1940's through early 1960's. The Niagaran Reef oil development began in the late 1960's, with the majority of the activity occurring between 1969 and 1986. Deep gas exploration occurred sporadically in the watershed beginning in the 1980's. Shallower Antrim gas development began in 1987. The potential for additional Antrim development continues to exist throughout the watershed.

Agricultural land uses can also have dramatic affects on aquatic environments, particularly where there is no vegetative buffer between agricultural areas and a stream. Although this use is limited in the Pine River system, the affects of agriculture can be seen in some areas. Tillage of soil increases erosion and sediment inputs to streams. These sediments bury gravel and cobbles critical to reproduction and survival of many fish species. Riparian vegetation is often removed, resulting is loss of habitat, warming of water temperatures and reduced filtering of contaminants. Wetlands, important as spawning and living areas for many species and important to the water quality of the system, were frequently drained to increase land available for tillage. Water withdrawal for irrigation can reduce summer base flows and negatively impact the river.

Land development for residential and other "urban" uses also has dramatic impacts on the aquatic environment. These impacts are increasing with the recent trends of increased development of northern Michigan waterfront properties. Sediment from construction activities, removal of streamside vegetation, filling of wetland and floodplain areas, increase of impervious land area adjacent to streams resulting in warmer temperatures, increased pollutant loads and less stable flows, and discharge of pollutants from wastewater treatment plants and individual wastewater systems such as septic tank/drain fields are all examples of the effects of urbanization on the Pine River system.

Part of the Pine's value is evident in the way it has influenced people's lifestyles since early times. Native Americans depended on the river for transportation, food, and water. Early settlers depended on it in much the same way, as it later became the sole means of transporting logs to the sawmills and thereby was very important to early residents' way of life. Today the river and its adjoining lands fill different purposes, but they are still important to everyday life. The river and lands are a recreational and commercial resource for many people. Current local culture has partly been determined by the need to meet the demands of users of the river and the surrounding resources. These demands continue to have an influence on the river corridor.

F. ***BIOLOGICAL COMMUNITIES***

1. ORIGINAL FISH COMMUNITIES

An accurate, comprehensive description of the fish community at the time of European settlement is not available. Michigan grayling were abundant in the Pine River prior to European settlement, especially in the upper reaches. Suckers, shiners, northern pike, and whitefish are the only other fish mentioned by early observers as associated with grayling in Michigan streams. Other species present, but not easily observed, would have been blacknose & longnose dace, sculpin, and chestnut and brook lamprey. Potamodromous species (fish that spawn in fresh water rivers but spend their adult lives in fresh water lakes) including lake sturgeon, lake trout, lake and round whitefish, burbot, walleye, and troutperch inhabited the river seasonally.

The Boardman River was thought to be the most southerly stream that native brook trout inhabited. However, brook trout may have been native to the Manistee River watershed. A

newspaper article in the Manistee Times dated Sept. 11, 1869 by George C. Depres cited that a Mr. Ruggles and other gentlemen took a large “mess” of “speckled brook trout” from Pine Creek, a tributary to the Manistee River downstream of Tippy Dam. The change of the Pine River from grayling to a trout river was attributed to competition, over-harvest, and habitat destruction during the logging era.

2. PRESENT FISH COMMUNITIES

European settlement caused dramatic changes in the Pine River and its watershed, many of which changed the river's fish communities. Logging, dams, agricultural and urban land use, point-source discharges, lake-level controls and introduction of exotic species, both intentional and unintentional, have all had an impact on the river system and therefore on its fish communities.

The watershed is now thought to contain 80 fish species (Table 2). Species distributions vary from one small inland lake to watershed-wide. One species has been extirpated and some are rare or threatened, while most native species are still present. Two species, the lake sturgeon and pugnose shiner, are considered “threatened” by the State of Michigan. Thirteen non-native fish species have been introduced into the watershed (Table 3). These include unintentional and intentional introductions and migrations.

A brief description of the existing fish populations by river segment follows:

Pine River

The Pine River has fair self-sustaining populations of brook, brown, and rainbow trout. The Pine is noted for the largest non-migratory rainbow populations in Michigan. The stretch from Tippy Dam backwaters to the mouth of the East Branch of the Pine is classified as a "Blue Ribbon" trout stream. Population data indicates that the Pine River has one-third of the standing crop of trout relative to other similar rivers. No fish stocking is done in the Pine River.

Tippy Dam Pond

Tippy Dam Pond provides a fishery for smallmouth bass, pike, and walleye. Walleye and channel catfish have been planted in the past. The state record walleye (17 lbs. 3 oz.) was caught in the Pine River arm of the backwaters.

Tributaries

Almost all tributaries are designated trout streams.

3. UNUSUAL FISH COMMUNITIES/HABITATS

The Pine River is home to an unusual fish community. A population of resident, non-migratory rainbow trout is present in the river in numbers sufficient to provide a sustainable fishery.

4. MAMMALS

Beaver, mink, muskrat, raccoon, otter, cottontail rabbits, snowshoe hare and fox and red squirrels are some of the mammal species associated with the Pine River watershed. All of these species are present in moderate to very abundant populations. White-tailed deer are abundant, and are seasonally dependent upon the mainstream and tributary corridors and headwater areas in the watershed. Deer use these sites for yarding purposes when severe winters force them to abandon the uplands. Black bear, bobcat, fox and coyotes can also be found in areas of the watershed, but are seldom observed.

Three species of mammals that frequent the watershed are listed in the Michigan Natural Features Inventory (Table 4). The pine marten is considered “threatened” by the State of Michigan, while the woodland vole is a species of “special concern.” Pine martens, which were extirpated, have been reintroduced along the Pine River uplands.

Recently, a colony of Indiana Bats, listed as “endangered” in the Michigan Natural Features Inventory, was found to be hibernating inside Tippy Dam. This is the northernmost known hibernaculum for Indiana Bats. Studies continue regarding roosting habits of the bats in this area.

5. BIRDS

A large variety of waterfowl nest in the watershed. The watershed is within the Mississippi Flyway used by migrating ducks and geese.

A review of the Michigan Natural Features Inventory identified eight species of birds listed as endangered, threatened or of special concern that may frequent the area. They include the bald eagle (threatened), common loon (threatened), king rail (endangered), Kirtland's warbler (endangered), loggerhead shrike (endangered), northern harrier (special concern), osprey (threatened), and red shouldered hawk (threatened). The bald eagle, loon, king rail, osprey, and red shouldered hawk are intrinsically associated with the watershed, either for habitat or feeding areas. A nesting pair of bald eagles near Tippy Dam reared 11 eaglets between 1989 and 1994. One other scarce bird species present in the area is the pileated woodpecker, a species that thrives in mature forests.

6. AMPHIBIANS AND REPTILES

Thirty-eight species of amphibians and reptiles have been documented in the Pine River system or its associated wetlands (Table 5). Three species are currently listed as of "special concern" in the Michigan Natural Features Inventory. They are the Massasauga rattlesnake, spotted turtle, and wood turtle. The wood turtle is of special interest in that its nesting sites

are sandy stream banks and it lives in river corridors. Breeding areas are of prime importance since nesting habitat may be reduced by river rehabilitation projects that stabilize and re-vegetate eroding stream banks. Studies on the Au Sable River (lower peninsula) and Indian River (upper peninsula) on the nesting requirements of the wood turtle indicate the wood turtle is fairly selective in choosing a nesting site, preferring gentle sloping south and west facing banks. Studies in Minnesota and Wisconsin have identified commercial and casual collection as the major cause of wood turtle decline. This is partly due to the turtles' apparent lack of fear of humans, allowing canoeists and others to easily approach and capture individuals. On-going studies also indicate that nest predation by racoons may have a major effect on population levels.

7. AQUATIC INVERTEBRATES

No comprehensive invertebrate studies have been done in the Pine River watershed. Invertebrates often are sensitive indicators of habitat problems that are affecting fish and other aquatic life. Dr. Justin Leonard (1937) studied macroinvertebrates as trout food in the Pine River. He found an abundant macroinvertebrate food source, including high densities of crayfish.

No species of mussels are currently listed for this area in the Michigan Natural Features Inventory (Table 4). However, no definitive studies have been conducted in the watershed and a complete inventory of the mussel species present would be beneficial.

8. PEST SPECIES

Pest species are defined here as those species that have been introduced, either accidentally or intentionally, or are exceptionally damaging to economic values, and that pose a significant threat to native species or their habitat. Most species do not pose any threat unless they are present in high densities.

The only fish pest species that is abundant in the Manistee River, its impoundments, tributaries, or natural lakes is the chestnut lamprey. While chestnut lamprey do cause mortalities to trout, the mortality is not significant.

A pest species of mollusk, the zebra mussel, was found in Tippy Dam Pond in 1997. They spread primarily by veligers (larval stages) being transported from one water body to another in water contained in outboard motors or boats.

Spiny water flea has invaded Lake Michigan, but no colonization has been documented in the Pine River. Rusty crayfish are in the Manistee River system, being very abundant below Tippy Dam. The "Rusty" is an exotic species, probably introduced by bait dealers and anglers. It is an extremely aggressive crayfish, even known to attack swimmers' toes, and has often replaced native species where introduced.

There are two known pest plant species in the Pine River system, purple loosestrife and Eurasian milfoil.

Several terrestrial pest species are present, among them gypsy moth, forest tent caterpillar, spruce budworm, and jackpine budworm. None are present in high enough densities to be a problem except the gypsy moth, which can cause severe tree mortality in forested areas. The gypsy moth itself does not kill the tree, but lowers its resistance to other diseases and parasites, especially in oaks on poorer sites.

Other natural features, animals and plants that occur in the Pine River area are listed in Table 4.

G. *HYDROLOGY AND CHANNEL MORPHOLOGY*

1. ANNUAL STREAM FLOWS

Draining an area of 265 square miles, the Pine River has an average discharge of 376 cubic feet per second (cfs) at the United States Geological Survey (USGS) gauge station located near Wellston. Average discharge rates, from the headwaters downstream, are as follows: East Branch Pine River near Tustin (Osceola County) - 36 cfs; Pine River near Leroy (Osceola County) - 79 cfs; Pine River near Luther (Lake County) - 211 cfs; and Pine River at High School Bridge (Wexford County) - 328 cfs.

2. SEASONAL FLOW STABILITY

Flow stability can be critical to support balanced and diverse fish communities. It is also a determining factor in ecological and evolutionary processes in streams and has been positively correlated to fish abundance, growth, survival, and reproduction.

The Pine River, especially some areas of the East Branch of the Pine River, has less stable flows than some of its close neighbors like the Manistee and Au Sable rivers, particularly during high flow periods. However, flows are fairly stable during low (drought) flows, indicating significant groundwater input.

3. DAILY FLOW STABILITY

Human-induced factors such as dam operations and some lake-level control structure operations can cause significant daily flow fluctuations. These daily fluctuations can destabilize banks, create abnormally large moving sediment bedloads, disrupt habitat, strand organisms, and interfere with recreational uses of the river. Aquatic production and diversity are profoundly reduced by such daily fluctuations.

Hydroelectric dams that operate in a peaking mode can cause significant habitat degradation. These projects generate high flood flows during peak electrical demand and drought flows during non-peak periods. Historically, Tippy Dam was operated as a peaking

operation. The Federal Energy Regulatory Commission (FERC) license for Tippy Dam was renewed in 1994 as a "run-of-the-river" project (see "Special Jurisdictions"). The operators of this facility on the mainstream had been voluntarily operating at run-of-the-river since 1989 with very positive biological benefits observed. Some of these benefits observed are abundant chinook and steelhead reproduction, reduced bank erosion, natural re-vegetation of stream banks, and spawning runs of lake sturgeon. Elimination of peaking operations may also have altered the character of some previously periodically inundated wetlands.

4. CHANNEL GRADIENT

River gradient is one of the main controlling influences on the river channel. Steeper gradients allow faster water flows with accompanying changes in depth, width, channel meandering, and sediment transport.

The average gradient of the Pine River mainstream is 10-15 feet per mile, one of the highest gradient streams in the Lower Peninsula. Naturally, some portions of the river are steeper than average while others are more gradual. These different gradient areas create different types of channel, and hence different kinds of habitat for fish and other aquatic life. Typical channel patterns in relation to gradient are listed below. In these descriptions, hydraulic diversity refers to the variety of water velocities and depths found in the river. The best river habitat offers such variety to support various life functions of various species.

Gradient Class	Channel Characteristics
0.0 - 2.9 feet/mile	Mostly run habitat with low hydraulic diversity
3.0 - 4.9 feet/mile	Some riffles with modest hydraulic diversity
5.0 - 9.9 feet/mile	Riffle-pool sequences with good hydraulic diversity
10.0 - 69.9 feet/mile	Well established, regular riffle-pool sequences with excellent hydraulic diversity
70.0 - 149.9 feet/mile	Chute and pool habitats with fair hydraulic diversity
> 150 feet/mile	Falls and rapids with poor hydraulic diversity.

5. STREAM CHARACTERISTICS

The 49-mile length of Pine River mainstream traverses a variety of water conditions. It has many sharp bends, short choppy riffles, and passable log and woody debris jams. From Walker Bridge to Peterson Bridge (M-37) there are occasional large rocks and clay ledges in the faster water.

The Pine River has a high mean daily flow of 1,830 cfs and a low of 175 cfs. Flood peak discharge equals 2,240 cfs. The Pine River is unusual among area rivers in that it may rise 1 to 4 ft above its average level during heavy rains or spring melt. The river gradient averages 10-15 ft./mi., highest of any stream in northwest lower Michigan (Figure 4). This creates nearly ideal riffle-pool conditions.

Stronach Dam on the lower Pine River was operated from approximately 1912 to 1953 to provide electric power for local use. The impoundment has filled with silt, leaving approximately 2 to 3 ft deep water, and is now useless for power generation. Inflow equals outflow at this time. The area under Stronach Dam impoundment has a gradient of 25 ft/mi., some of the best potential spawning area of the entire stream. The staged removal of this dam is underway and is scheduled for completion in 2003.

Tippy Dam Pond

The Pine River area inundated by Tippy Dam was a high gradient riffle area (over 15 ft./mi.) This area was high quality gravel/cobble substrate spawning habitat.

H. *VEGETATION, SOILS AND LAND USE PATTERNS*

The historical vegetative cover of the watershed was predominantly pine forest and hardwood forest, with wetlands intermixed. The current landscape is predominantly coniferous, deciduous, or wetland forest (54 percent), agricultural land (39.03 percent) and a few urban areas (3.29 percent). Common tree species in areas with loamy soils include northern white cedar, balsam fir, red maple, and basswood. In the higher, sandy areas, red pine, jack pine and oak dominate.

Current land use patterns in the watershed are approximately as follows:

Urban and suburban	3.29%
Agricultural	39.03%
Range land	1.71%
Coniferous forest	12.18%
Deciduous forest	29.28%
Wetlands (forested & non-forested)	12.83%
Lakes and streams	1.68%

While thirty-nine percent of the area is listed as agricultural land, little of this is tilled cropland. The majority is pasture, fruit orchards, or Christmas tree plantations. Major tilled agricultural areas include the North Branch of the Pine River in Cherry Grove Township, Wexford County and the East Branch of the Pine River in Burdell and Sherman Townships, Osceola County.

The soils along the Pine River corridor are mostly the Tawas-Croswell-Lupton series, with significant areas of Rubicon-Montcalm-Graycalm series and Nestor-Kawkalin-Manistee

series. Many of these series are clays, loams and mucks that are moderately to poorly drained soils.

Soils of the watershed include the following (percentages are approximate).

Clayey	7.9%
Loamy/organic/sand/gravel/sandy	41.4%
Sandy	19.4%
Wet/clayey/loamy/sandy/organic	29.6%
Inland lakes and streams	1.7%

I. *LAND OWNERSHIP*

The State of Michigan MDNR and the U.S. Forest Service have extensive land ownership in the Pine River corridor. Table 6 reflects the ownership along the Pine River within the Natural River corridor. A total of 35 percent (4,780 acres) of the river corridor lands are in public ownership. Of that public ownership, the State of Michigan manages 14 percent (660 acres) and the U.S. Forest Service manages 86 percent (4,120 acres).

J. *RECREATIONAL USES*

Fishing and canoeing are two of the most popular recreational uses on the Pine River system. These two activities also generate user conflicts in some areas at certain times of the year.

1. CANOEING

Nearly the entire Pine River mainstream is canoeable. Headwater segments and tributaries are not generally suitable for canoeing due to brush, logjams, and beaver dams.

The Pine River is most heavily canoed from Lincoln Bridge to Low Bridge and is in fact one of the most heavily canoed waterways in the nation, with the number of launches limited on US Forest Service lands through a permit system. Under this system 44,000 launches are reserved for the six Pine River-area canoe liveries and 11,000 launches are reserved for private canoes annually. Tubing is also increasing in popularity, and is not currently regulated through the permit system. Numerous canoe liveries are located in the Pine River areas.

Canoe trip lengths and conditions for various segments of the system are as follows (much of this information is taken from “Canoeing Michigan Rivers” by Jerry Dennis and Craig Date, 1986 Friede Publications):

PINE RIVER

Edgetts Bridge to Elm Flats, 18 miles, approximately 5-7 hours

Although it is possible to canoe the river upstream of Edgetts Bridge with some difficulty, it is not recommended due to the small size of the river and the numerous deadfalls blocking passage. Downstream of Edgetts, the river is 20-40 feet wide, one to four feet deep with moderate to quick current. There may be occasional fallen trees blocking the river in the upper sections of this stretch, particularly in the spring. Intermediate access is good, with access sites and two State Forest campgrounds along the way. From Lincoln Bridge downstream, USFS watercraft permits are required to use Federal lands for access, and camping is not permitted except at designated campgrounds. There are occasional houses and cottages in this section, but the area is lightly developed overall.

Elm Flats to Peterson Bridge, 12.5 miles, approximately 3-5 hours

From Elm Flats access site to Dobson Road access site, current is moderate to quick, with many tight turns. Downstream of Dobson, and particularly downstream of High School Bridge, the current picks up speed and there are numerous riffle areas and light rapids. The rapids are Class II at worst in high water, but can be a challenge to inexperienced canoeists.

Peterson Bridge to Low Bridge, 2 ½ to 3 ½ hours

Fast water continues almost to Stronach Dam. At this writing, the dam is being removed over a seven-year period, which should extend the fast current areas by up to two miles. Presently, portage the dam on the right. At a minimum, basic canoeing skills are recommended for this section and parts of the section upstream. There is very little development in this section, and high, forested banks line the river. Downstream of Stronach Dam, the influence of Tippy Dam can be seen. The river slows and widens as the paddler approaches Low Bridge. Most paddlers end their trip here, but the trip can be extended downstream into Tippy Pond and then the lower Manistee River.

2. FISHING

Trout fishing is extremely popular throughout the river system, including the smallest of tributaries (also see "**Present Fish Communities**"). Currently, salmon and steelhead are blocked from migration upstream by Tippy Dam, so fishing is almost exclusively for resident trout.

Upper portions of the Pine River mainstream and all of the lesser tributaries are wadeable. Most contain brook and brown trout, with an unusual population of resident rainbow trout present in the Pine River. Additionally, there are small wadeable portions in downstream reaches of the lower river, particularly in higher gradient riffle areas.

The impoundment behind Tippy Dam contains good populations of walleyes, smallmouth bass, channel catfish and others. These fish are currently blocked from migrating into most of the Pine River by the remnants of Stronach dam and by high gradient, cold waters unsuitable for those species

3. OTHER RECREATIONAL ACTIVITIES

Hunting for a variety of game is popular in the watershed. Game mammals such as white-tailed deer, squirrels, snowshoe hares and cottontail rabbits are abundant in many areas. Game birds present include ruffed grouse, woodcock, a large wild turkey population and many varieties of waterfowl.

Other popular recreational activities include camping, picnicking, trapping, ORV trail riding, cross country skiing, hiking, horseback riding, bird watching and simply observing the river and its associated flora and fauna. Segments of the North Country National Scenic Trail are located in the watershed, some coinciding with the existing Shore to Shore Trail. Numerous snowmobile trails exist in the watershed. An ORV trail crosses the Pine River at the Silver Creek Campground.

There are numerous campgrounds and public access points throughout the river system. These are listed in Table 7.

K. *DAMS AND BARRIERS*

There are currently 12 known dams in the Pine River watershed, regulated under authority of Michigan's Dam Safety Part 315 of 1994 PA 451 (Table 8). Most of these have a head of ten feet or less. None have a head greater than 20 feet. The storage capacity of most of these dams is very small, in the 0-10 acre-feet range. With the removal of Stronach Dam, only two dams have a storage capacity greater than 100 acre-feet.

Stronach Dam is the sole retired hydroelectric facility on the Pine River. Consumers Energy agreed to set aside $750,000 for the removal of Stronach Dam as part of the recent Tippy/Hodenpyl Federal Energy Regulatory Commission (FERC) license. This will restore two miles of high gradient high quality cold water fish habitat. A long-term fish and habitat study of the areas above and below the dam is being conducted. The results of the study will be used to determine whether a fish barrier will be constructed to block migration of coolwater species from Tippy Dam Pond into the Pine River.

L. *MINERAL EXTRACTION*

The watershed has experienced a great deal of oil and gas activity since the 1930's. Earlier exploration and extraction activities focused on recovering oil from formations in the eastern and southern areas of the watershed. The Niagaran Reef that is present throughout the northern portion of the watershed was first developed in the late 1960's. Since 1987, there has been increased activity related to Antrim gas development, tapping relatively shallow gas reserves throughout the watershed.

M. *WATER QUALITY*

Overall surface water quality in the Pine River basin is excellent. Water quality parameters under normal conditions meet the criteria for total body contact recreation, and aquatic life. This is due in large part to the deep permeable soils of the watershed which allow precipitation to rapidly be absorbed. This leads to groundwater flows being the dominant contributor to river flow. Limited development has also helped preserve water quality.

No National Pollution Discharge Elimination System (NPDES) permits for surface water discharge of effluent exist for the basin.

The Michigan Environmental Response Act, Act 307 of 1982, as amended, provides for identification, risk assessment and evaluation of sites of environmental contamination. One hundred twenty-three such sites have been identified in the Pine River Basin (Table 10). None are listed on the Environmental Protection Agency's (EPA) National Priority List (Superfund).

With good water quality in the watershed, fish populations in the river system have not been subject to any specific fish consumption advisories.

Almost all of the waters of the Pine River are classed as designated trout streams, with only the Rose Lake Outlet and the backwaters of Tippy Dam being classified as warmwater areas.

N. ***SPECIAL JURISDICTIONS***

Numerous Federal and State laws and county, township and municipal ordinances affect the river and riparian zones. Some Federal laws and many State statutes affecting the river and its adjoining lands are administrated by the Michigan Department of Environmental Quality (MDEQ), Land and Water Management Division (LWMD) (Table 12).

1. NAVIGABILITY

Navigable Waters as Public Waters

The definition of legal navigability of Michigan streams (i.e. "public waters") is part of an ongoing controversy. Public and private rights related to water have historically been determined by the courts. A navigable water has been defined as any water which in its natural state is capable of and has been used for the purposes of commerce, travel and trade by the customary and ordinary modes of navigation. The floating of logs during the lumbering era was held to be an act of commerce. Consequently, any lake or stream used for this purpose would be considered navigable. Thus, the "log floatation test" has largely become the method of determining the "navigability" of a stream in Michigan, and therefore whether that stream is a public water.

On a navigable stream, the public has the right to float the stream, wade on the submerged soil and to fish in the stream. This right does not extend to trespass upon the private lands

of abutting landowners, except that a wading angler may enter upon the upland to avoid a hazard or other impediment obstructing passage within the stream. The public should also feel secure in making a portage around any dam or other obstruction. The banks of a public stream are subject to the public easement only so far as they are necessary to exercise the right of passage and navigation. There have been periodic legislative efforts in Michigan to refine the definition of a navigable water.

Whether a stream is determined to be navigable has no bearing on whether it may be designated a Natural River. Also, designation of a stream as a Natural River has no bearing on its status as a navigable water.

None of the Pine River system has been declared non-navigable by the courts. Interestingly, the Pine River was the subject of a landmark Michigan Supreme Court decision (Collins v. Gerhardt in 1926) that that held that the public had the common right of fishing in any part of a navigable stream subject only to the restraints and regulations impose by the State.

2. FEDERAL ENERGY REGULATORY COMMISSION

The Federal Energy Regulatory Commission (FERC) currently regulates the operations of Tippy Dam. In 1993, an offer of settlement regarding the re-licensing of this dam and ten other hydroelectric dams on the Manistee, Au Sable and Muskegon Rivers was drafted for presentation to FERC. Some of the "project lands" affected by Tippy Dam are on the lower portion of the Pine River.

This settlement was entered into voluntarily by and between Consumers Power Company (now Consumers Energy) and the United States Department of Agriculture Forest Service (USFS), the United States Department of Interior Fish and Wildlife Service (USFWS), the Michigan Department of Natural Resources (MDNR), the United States Department of Interior National Park Service (NPS), and the Michigan State Historic Preservation Officer (SHPO). The settlement concerns the future handling of issues such as project operation, fish passage, project boundaries, land management, water quality, downstream fish protection, historical and archaeological resource management, soil erosion control, and threatened, endangered and sensitive species management. It also establishes retirement funds for the hydroelectric projects.

In July 1994 FERC adopted most of the settlement agreement. The major issues include:

Land Management Plans: Management plans have been written by Consumers Energy with input from resource agencies for all project lands. These plans shall include recreation, Federal and State listed threatened, endangered, candidate and sensitive species; wildlife and their habitat; and forestry sections.

Downstream Fish Protection: Consumers Energy agreed to study, plan, design, construct, operate and maintain fish entrainment protection devices or measures. Consumers Energy also agreed to conduct evaluation studies on the effectiveness of measures once installed.

Fish Passage: Consumers Energy will provide for design, construction, operation and maintenance of fish passage structures (upstream and associated downstream) at each hydroelectric project, provided a comprehensive river management plan which demonstrates the appropriateness of fish passage has been developed by the MDNR, the USFS does not object to fish passage at the facility and FERC approves such structures.

Annual Contributions to the Habitat Improvement Account: Consumers Energy agreed to provide contributions to the State of Michigan Habitat Improvement Account to be used for fisheries habitat enhancement, aquatic studies, fisheries recreation, water quality improvement and soil erosion control activities on the Manistee River.

Water Quality Monitoring: Consumers Energy agreed to study, plan, design, construct, operate and maintain water quality enhancements for the river, including dissolved oxygen enhancement measures and temperature enhancement measures. These enhancement measures include monitoring stream flow and water quality parameters at a number of stations along the river corridor.

Historical and Archaeological Resources: Consumers Energy will provide funding for historical and archaeological resources evaluation, mitigation, and enhancement activities. All prudent measures will be taken to assure protection of historical and cultural resources.

Soil Erosion Control: Consumers Energy will provide funding for soil erosion control. These funds will be used to correct severely eroded sites that were influenced by the past peaking operation of the projects.

Project Operations: Tippy project will be operated as a "run-of-river" project. "Run-of-the-river" for Tippy Dam means that the flow through the dam will be approximately equal to the flow at Hodenpyl Dam upstream plus the inflow of the Pine River.

3. COUNTY DRAINS

County Drain Commissioners have authority to establish designated drain systems under the Michigan Drain Code (PA 40, 1956). This allows for construction or maintenance of drains, creeks, rivers, and watercourses and their branches for flood control and water management. A designated drain may be cleaned out, straightened, widened, deepened, extended, consolidated, relocated, tiled, and connected to improve flow of water. Designated drains constructed prior to January 1, 1973 are exempt from the provisions of the Inland Lakes and Streams Part and the Wetlands Protection Part of 1994 PA 451.

4. FEDERAL WILD AND SCENIC RIVERS

A portion of the Pine River mainstream is designated as a Wild and Scenic Rivers under provisions of the Federal Michigan Scenic Rivers Act of 1991 (PL 102-249). This includes

25 miles of the Pine River from Lincoln Bridge to Stronach Dam backwaters classified as a "Scenic" river.

The U.S. Forest Service, which administers lands along these sections, has developed management plans for Federal lands in these three areas. Federal designation of these rivers does not result in condemnation or mandatory zoning of private lands along the rivers.

O. ***CITIZEN INVOLVEMENT***

Many citizens groups take an active role in protecting and managing the Pine River watershed. Such groups often act in partnership with MDNR, USFS and other government agencies to work toward the improvement of the river system. Such groups include the Michigan Council of Trout Unlimited, Pine River Area Chapter of TU, Michigan Steelheaders, Michigan River Guides Association, Pine River Association, Mackinaw Trail Fly Fishers, George Mason Chapter of TU, Michigan Chapter of Fly Fishing Federation, Pine River Canoe Livery Association, Michigan Land Use Institute and the Michigan Hydropower Coalition. The non-profit Conservation Resource Alliance have been instrumental in forming partnerships with many of these groups in the form of restoration committees dedicated to stabilizing eroding streambanks and improving inadequate road/stream crossings. Seven of these groups have formed the Pine River Watershed Coalition,

Many citizens took an active role in helping MDNR develop this Natural River management plan as part of the Pine River Citizens Advisory Group. Group members represented a wide range of interests such as property owners, local government, local and State-wide citizen and sporting groups, local business and interested citizens from the local area and outside the area. The knowledge and commitment of group members over a three-year planning process was invaluable in the development of recommendations for stream segments to be designated and use and development standards for both public and private lands along those segments.

II. PROPOSED PINE RIVER NATURAL RIVER PLAN

A. *GOALS AND OBJECTIVES*

1. GOAL OF DESIGNATION

The goal of Natural River designation of the Pine River system is to protect, preserve and enhance the integrity and natural values of the Pine River system for present and future generations, while ensuring proper management of public and private lands and preserving the rights and privileges of owning and developing private property using sound conservation practices.

2. OBJECTIVES OF DESIGNATION

The objectives of Natural River designation of the Pine River system include:

a. To maintain water quality consistent with the designated classification of the river and adhere to the concept of non-degradation of water quality.
b. To prohibit development or activity that may damage the ecologic, aesthetic or historic values of the river and adjacent lands.
c. To ensure that development that occurs has a minimal impact on the natural and cultural values and aesthetic qualities of the river system.
d. To ensure that a varied and quality recreational experience that is harmonious with the natural values and aesthetic qualities of the stream is maintained.

B. *RIVER SEGMENTS PROPOSED FOR DESIGNATION*

To qualify for designation as a Natural River, river segments must possess one or more natural or outstanding values such as a free-flowing condition or fisheries, wildlife, boating, scenic, aesthetic, floodplain, ecologic, historic and recreational values. If a river meets this broad criteria, it may then be classified in one of three Natural River categories; Wilderness, Wild-Scenic or Country-Scenic. Criteria for classification include the natural character of the river corridor, degree of river corridor development, number of paralleling roads and road crossings, type and density of streamside vegetation, water quality, aesthetic qualities of the corridor, and others. All stream segments in the Pine river system are recommended for designation in the Wild Scenic classification.

Unless otherwise noted, all lakes, ponds, impoundments or other surface water bodies not traditionally considered rivers, streams or creeks are included in the following designated areas if they are a contiguous part of the stream system, i.e. if the stream flows into and out of the water body.

WILD-SCENIC RIVERS

Wild-Scenic rivers should have mostly wild or forested borders exhibiting light development, with high water quality, but near development and relatively accessible. The wild aspect may be relatively broad or confined to a narrow corridor. Any impoundments should have outstanding aesthetic and recreational characteristics to offset the interference with the free-flowing condition of the stream. Roads may occasionally lead to or cross the river. The rivers may include small communities and or concentrations of development limited to relatively short reaches of the total designated area.

The following portions of the Pine River system are recommended for designation as "Wild-Scenic Rivers" under authority of Natural Rivers Part 305, 1994 PA 451 (some identified stream names are local in origin, particularly for streams not named on USGS topographic maps).

Pine River area

Pine River mainstream, from the confluence of the North Branch Pine River and the East Branch Pine River in section 29 of Burdell Twp., T20N, R10W to M-55 (49 miles).

North Branch Pine River from its easternmost crossing of the north line of section 20 of Clam Lake Twp., T21N, R9W to its confluence with the East Branch of the Pine River (13.5 miles). **Lands adjacent to the North Branch from its confluence with Spalding Creek to its confluence with the East Branch are subject to Mainstream development standards.**

Spalding Creek from 46 Road (the south line of section 16 of Cherry Grove Twp., T21N, R10W) to its confluence with the North Branch of the Pine River (4.5 miles).

Fairchild Creek from its source in section 24 of Henderson Twp., T21N, R11W to its confluence with the North Branch of the Pine River (6.8 miles).

Sixteen Creek from its source in section 2 of Burdell Twp., T20N, R10W to its confluence with the North Branch of the Pine River (1.6 miles).

Unnamed stream from the outfall of a dam in section 8 of Burdell Twp., T20N, R10W to its confluence with the Pine River (0.4 miles).

East Branch of the Pine River from the outfall of a lake in section 1 of Burdell Twp., T20N, R10W to its confluence with the North Branch of the Pine River (7 miles).

Rose Lake Outlet from its sources at the outfall of Rose Lake in section 3 of Rose Lake Township, T19N, R9W and the outfall of Emery Lake in section 24 of Sherman Twp., T20N, R9W, to its confluence with the East Branch of the Pine River (8.7 miles).

Edgett Creek from the west line of section 36 (190th Rd.) in Burdell Twp., T20N, R10W to its confluence with the Rose Lake outlet **including both branches of the Diamond Lake outlet** from their sources in section 26 of Burdell Twp. to the confluence with Edgett Creek (4.2 miles).

Unnamed stream from its source in section 20 of Sherman Twp., T20N, R9W to its confluence with the Rose Lake outlet (4.3 miles).

Sprague Creek from the outfall of a pond in the center of section 33 of Burdell Twp., T20N, R10W to its confluence with the Pine River (1.1 miles).

Beaver Creek from the north/south centerline of section 11 of LeRoy Twp., T19N, R10W to its confluence with the Pine River (7 miles).

Little Beaver Creek from the outlet of a large pond in the northeast 1/4 of section 19 of LeRoy Twp., T19N, R10W to its confluence with Beaver Creek (1.1 miles).

Unnamed stream from the outfall of the southernmost of two ponds in section 14 of Ellsworth Twp., T19N, R11W to its confluence with the Pine River (1.9 miles).

Coe Creek from the outfall of Lake Olga in section 1 of Dover Twp., T20N, R11W to its confluence with the Pine River (12.2 miles).

Dyer Creek from the outfall of a small pond in section 13 of Dover Twp., T20N, R11W to its confluence with Coe Creek (1.2 miles).

Sellars Creek from its source in section 21 of Dover Twp., T20N, R11W to its confluence with the Pine River (1.7 miles).

Unnamed stream from its source in section 20 of Dover Twp., T20N, R11W to its confluence with the Pine River (1.6 miles).

Unnamed stream from its source in section 19 of Dover Twp., T20N, R11W to its confluence with the Pine River (1 mile).

Unnamed stream from its source in section 24 of Newkirk Twp., T20N, R12W to its confluence with the Pine River (0.6 miles).

Silver Creek from its source in section 15 of Dover Twp., T20N, R11W to its confluence with the Pine River, **including all perennial tributaries** from their sources to their confluence with Silver Creek (8 miles).

Unnamed stream from its source in section 13 of Newkirk Twp., T20N, R12W to its confluence with the Pine River (0.6 miles).

Unnamed stream from its source in section 11 of Newkirk Twp., T20N, R12W to its confluence with the Pine River (0.5 miles).

Unnamed stream from its source in section 7 of Dover Twp., T20N, R11W to its confluence with the Pine River (1.5 miles).

Unnamed stream from its source in section 1 of Newkirk Twp., T20N, R12W to its confluence with the Pine River (1.5 miles).

Poplar Creek from its source in section 26 of Henderson Twp., T21N, R11W to its confluence with the Pine River (8.5 miles).

Dowling Creek from its two sources in sections 21 and 28 of Henderson Twp., T21N, R11W to its confluence with Poplar Creek (3 miles).

Hoxey Creek from its source in section 25 of South Branch Twp., T21N, R12W to its confluence with the Pine River (2.9 miles).

Unnamed Creek from its sources in section 27 and 34 of South Branch Twp., T21N, R12W to its confluence with the Pine River (1.5 miles).

Yates Creek from its source in section 22 of South Branch Twp., T21N, R12W to its confluence with the Pine River (1.8 miles).

Total designated Pine River Wild-Scenic mileage – 159.2 miles (49 mainstream, 110.2 tributaries).

C. ***NATURAL RIVER DISTRICT***

The Pine River Natural River District includes the stream channel of all designated mainstream and tributary segments and all lands within 400 feet of the ordinary high water mark (river's edge) on each side of all designated streams. This district defines the area within which various use and development standards will apply. **This does not establish a 400-foot building setback or non-development zone. Establishment of this district in no way implies a "taking" of these lands by the state, nor does it open private lands for public use. Private lands remain subject to the rights of private property ownership.**

Map Page

D. *PRIVATE LAND DEVELOPMENT STANDARDS*

The following standards apply to all portions of any lot or parcel within 400 feet of the river's edge or any lot or parcel completely within 400 feet of the river's edge on each side of all designated rivers. Mainstream standards apply to the mainstream of the Pine River from the confluence of the north and east branches downstream to M-55 in Manistee County, and the North Branch of the Pine River from its confluence with the East Branch upstream to its confluence with Spalding Creek (**see also "Summary of Standards" on following page**).

(*NOTE: As part of the FERC re-licensing process, Consumers Energy has developed a land management plan for "project lands" in the Tippy Dam area. The plan includes use and development standards that in most cases are more restrictive than private land standards in this plan. The Consumers Energy land management plan also states that Consumers Energy "…will comply with any applicable provisions that are developed as a result of the MDNR's Natural Rivers process.")*

1. PERMITTED USES

The type of land use adjacent to a river has a major impact on the natural values of the river system. Uses that result in high human and vehicle traffic, dense development, large non-residential structures with impermeable parking areas, use or storage of chemicals or other activities that are not compatible with the river environment will not be permitted in the Natural Rivers District. Three categories of uses are permitted in the Natural River District, as follows:

Exempt uses in the Natural River District are uses that are allowed by right and DO NOT require a Natural River zoning permit. They include the following:

a. Private, noncommercial recreation such as camping, boating, fishing, hunting and other similar activities that do not require permanent structures;
b. Reforestation and other accepted forest management practices landward of the native vegetation buffer that do not require permanent structures;
c. Agricultural activities, such as plowing, disking and planting of crops, including general and specialized farming such as Christmas tree farms, provided that all new activities occur landward of the native vegetation buffer. Construction of residential and farm-related structures and appurtenances are classified as principal uses (see below) and are subject to zoning permit requirements. New aquaculture facilities, expansion of existing aquaculture facilities, and new or expansion of existing concentrated animal feeding operations are not permitted within the Natural River district.
d. Operation of licensed motor vehicles on public or private roads that are designed to provide access to a permitted use;
e. Off-road operation of emergency and public utility vehicles;

f. Cutting of low-growing vegetation in the native vegetation buffer to create a private footpath leading from outside the native vegetation buffer to a single point on the river's edge, or to trim or prune vegetation for a filtered view of the river.

Principal uses in the Natural River District are uses that are allowed by right but that REQUIRE a Natural River zoning permit. They include the following, subject to all permit requirements and development standards outlined in this plan:

a. Single family residential and detached long term rental dwellings (other than short-term rental cabins), farm and other accessory buildings and appurtenances such as fences, pedestrian bridges (tributaries only), satellite dishes, low-profile boardwalks and river access stairways;
b. Private docks;
c. Private utility service lines;
d. Individual on-site wastewater treatment systems and water supply wells;
e. Residential water supply wells;
e. Mineral exploration and extraction activities;
f. Land divisions;
g. Home occupations;
h. Limited land alteration;
i. Forest management activities in the native vegetation buffer.

Special uses in the Natural River District (uses allowed upon approval by the Pine River State Zoning Review Board or appropriate local zoning authority) include the following, subject to all permit requirements and development standards outlined in this plan;

a. Detached rental cabins
b. Campgrounds
c. Vehicle bridges (tributaries only)

SUMMARY OF STANDARDS – Following is a summary of selected private land development standards for the Pine River system.

Native Vegetation Buffer Mainstream	Native Vegetation Buffer Tributaries	Building Setback Mainstream	Building Setback Tributaries	Bluff Setback Mainstream	Bluff Setback Tributaries	Minimum Lot Area All Segments	Minimum Lot Width All Segments
100 feet	50 feet	150 feet	100 feet	50 feet	25 feet	80,000 square feet	200 feet

- All setbacks and native vegetation buffer widths are measured horizontally from the Ordinary High Water Mark (OHWM), a.k.a. the river's edge.
- All building setbacks may be reduced based on height of the stream bank (see section II.D.3.).

2. NATIVE VEGETATION BUFFER

The presence of native vegetation adjacent to the river is a critical element in maintaining the natural characteristics of the river corridor. A buffer that includes native shrubs, trees and grasses filters runoff, provides wildlife habitat in critical migration corridors, provides the large woody debris and leaf litter in the stream channel important for fish and invertebrate habitat, shades the river to maintain cool water temperatures and screens development from the river user. Manicured, maintained lawns perform none of these functions.

Natural Rivers Part 305 limits the establishment of a vegetative buffer on private land subject to State zoning rules to a maximum width of 100 feet from the river's edge. Most research concludes that a 75-100 foot-wide vegetative buffer is necessary to minimally provide for the functions mentioned above. Much research indicates that greater width buffers better provide for many of those functions. In the cases where a buffer less than 75 feet wide is recommended in this plan, it is done so at the urging of Citizen Advisory Groups and/or in recognition of certain areas in which the current level of development and streamside vegetation removal is such that a 75-foot or larger buffer is not practical. If a local unit of government feels that a larger vegetative buffer is appropriate for their area of jurisdiction, that unit of government is encouraged to incorporate a larger buffer zone standard in their local zoning ordinance.

For the above reasons, a restricted vegetative cutting area encompassing **the river and all lands within 100 feet of the mainstream and all lands within 50 feet of all designated tributaries** is required. Within this restricted vegetative cutting area the following standards apply:

Trees and shrubs may be pruned over no more than a 50-foot width for a filtered view of the river, but clear-cutting in this native vegetation buffer is prohibited. The native vegetation buffer is also subject to the following provisions:

a. **Unsafe trees and noxious plants and shrubs** such as poison ivy and poison sumac may be removed.
b. The selected removal or trimming of trees for **forest management practices or disease and insect control**, and clearing of vegetation to the minimum width required for public utility primary **electric distribution lines and service lines** for permitted uses is permitted upon approval of the zoning administrator in consultation with the local Soil Conservation District Resource Professional, if the activity is in keeping with the goals and objectives of the Natural River Plan.
c. **Camping** other than low-impact tent camping is not permitted in the native vegetation buffer.
d. **Mowing** is prohibited in the native vegetation buffer except in areas that had been continuously maintained in a mowed condition prior to adoption of rules or ordinances implementing this plan, or to establish a footpath to the river not to exceed four feet wide.

e. In the Pine River system upstream of the confluence of the North Branch and East Branch and on all designated tributaries, **vegetation in the stream channel** may not be disturbed, except to alleviate flooding that threatens a building. In the Pine River mainstream downstream of the confluence of the North Branch and East Branch vegetation may be selectively pruned to allow for safe navigation and to alleviate flooding that threatens a building. This may include pruning of a **maximum eight-foot wide** section of vegetation. Portions of trees, logs and other natural material imbedded in the stream channel may not be disturbed.

f. A **boardwalk** constructed in conjunction with the footpath described in d. above is permitted upon approval of the zoning administrator if it is placed only in areas that are generally too wet to be traversed without significant disturbance of the soils, the boardwalk and supports are constructed of wood, the boardwalk is no more than three feet wide and does not include railings, and the top of the boardwalk lies no more than twelve inches above grade.

g. **All islands** in all stream segments are subject to the native vegetation buffer standards.

h. A wider native vegetation buffer may be required for certain commercial uses.

These recommended standards are the minimum required to provide some meaningful protection for the river. Local units of government are encouraged to retain or incorporate more restrictive standards if it is determined that the recommended standards may not adequately protect the unique features of the river within that unit of government. Also, although not required **it is highly recommended that property owners re-establish native vegetation** in areas in which streamside vegetation has been removed and lawns have been established.

3. BUILDING SETBACKS

A "Structure" is defined as anything that is constructed, erected or moved to a property and that is located on, above or below the ground, including temporary recreational facilities such as travel trailers, fifth wheels and tents that are on site for more than 30 days per year. Keeping structures a reasonable distance from the river's edge helps keep the river corridor in as natural state as possible while still allowing construction of new residences and associated structures. Structural setbacks help to:

a. Lessen the impacts of construction, reducing the possibility of sedimentation of the stream.

b. Keep impervious surfaces such as driveways, sidewalks and rooftops away from the river. This helps ensure that precipitation filters through the soil, enters the groundwater and then enters the stream instead of running overland to the stream. (Water entering the stream through the groundwater contains fewer contaminants and is cooler, preserving water quality and benefiting the stream's fishery. Water entering the stream through the groundwater also enters at a slower rate, resulting in more stable year-round flows).

c. Keep yard areas that are compacted by construction equipment and everyday activity further from the stream, resulting in the same benefits as in b. above.
d. Lessen the visual impacts of new structures for the river user.
e. Reduce fragmentation of critical wildlife migration corridors adjacent to the stream.

To accomplish the above goals, **minimum** structural setbacks for new construction and the above-mentioned temporary facilities are required as follows:

NOTE:

i. Structures in existence at the time of adoption of rules or ordinances implementing this plan, but that do not meet these standards, do not need to be moved;

ii. For the purposes of this plan, on private land a "bluff" is defined as a bank rising at a slope of 33% or greater from within 10 feet of the river's edge. The "crest" of a bluff is the first river-ward facing area at least 100 feet long (approximately parallel to the river) that breaks to a slope of less than 18% for a distance landward of the river of at least 25 feet.

Mainstream - 150 feet from the ordinary high water mark (river's edge) and 50 feet from the crest of a bluff.
(The setback may be decreased 1 foot for every 1-foot rise in bank height to a minimum distance of 100 feet from the ordinary high water mark. The reduction in setback does not apply until the bank height reaches 25 feet, at which point the reduction in setback is 25 feet.)

Tributaries - 100 feet from the ordinary high water mark and 25 feet from the crest of a bluff.
(The setback may be decreased 1 foot for every 1-foot rise in bank height to a minimum distance of 75 feet from the ordinary high water mark. The reduction in setback does not apply until the bank height reaches 15 feet, at which point the reduction in setback is 15 feet.)

All areas

Structures may not be placed or erected on **lands that are within the 100-year floodplain (the area with a 1% chance of flooding in any given year), or in any wetland area.**

Structures in areas of concentrated development

Some areas of the watershed **contain groups of small, nonconforming lots or parcels**, most of which contain structures that do not meet the new building setbacks. In these areas, the following building setback standard will apply in State-zoned areas of the watershed and in areas in which local zoning ordinances contain this provision:

IF: a. A vacant legal nonconforming lot or parcel is between and adjacent to two lots or parcels that contain legal structures that do not meet the building setbacks above, and,

b. The adjacent non-conforming structures are within 300 feet of each other,

THEN: The minimum building setback for new structures on the vacant lot or parcel is equal to the distance from the river of the adjacent structure that is farthest from the river's edge, **or** the minimum required width of the native vegetation buffer, **whichever is greater**. However, structures may not be placed or erected on lands that are within the 100-year floodplain or in any wetland area.

The above recommended standards are the minimum required to provide some meaningful protection for the river. **Local units of government are encouraged to retain or incorporate more restrictive standards if it is determined that the recommended standards may fall short in protecting the unique features of the river within that unit of government**.

4. MINIMUM LOT OR PARCEL SIZES

Controlling the density of structures has many of the same benefits as structural setbacks from the river's edge. Impervious surfaces are separated, allowing better infiltration of precipitation. Septic systems serving individual structures are isolated, lessening the impact of effluent on the stream. More native vegetation within and landward of the native vegetation buffer tends to be preserved. The visual impact of structures for the river user is also minimized.

For these reasons, all newly established separate lots or parcels created in the Natural River District are subject to the standards listed below. **All of the standards listed below must, for each lot or parcel created, exist on at least one side of the stream that is accessible by a public road or legal easement. No new lot or parcel will be created that would require reaching the only buildable area by constructing a road/stream crossing or by filling wetlands for an access road.**

Each new lot or parcel in the Natural River District must:

a. **Have at least 200 feet of river frontage** (unless a riverfront "common area" subject to a conservation easement is established, or the parent lot or parcel does not have river frontage, in which case this dimension will be measured at the point of the lot or parcel closest to the river) **and be at least 200 feet wide at the minimum building setback line,** and;

b. **Contain at least 1/2 acre of existing contiguous upland buildable area** (non-wetland, non-floodplain) landward of the minimum building setback line, and;

c. **Contain at least 80,000 square feet of area** within the Natural River District (any "common area" created or any bottomlands will not be used in any calculations related to minimum lot or parcel area), and;

d. **Have sufficient depth to accommodate the required building setbacks**.

***NOTE**: For all stream segments, if the parent parcel or lot does not have river frontage, and the front (riverward) line of any newly created lot or parcel is greater than 150 feet from the river's edge at all points, then section c. does not apply, and the minimum lot or parcel width will be measured at the front lot or parcel line.*

A zoning permit, special use permit or variance will not be granted for any activity on a lot or parcel that is created after the effective date of rules or ordinances implementing this plan if the new lot or parcel does not meet all of the above standards.

Clustering of structures involves concentrating structures and the effects of development in a small area while preserving larger areas in open space. The relatively small area encompassed by the Natural River District limits the use of clustering techniques. However, clustering of structures is allowed if the provisions outlined in section II.D.6., **NUMBER OF RESIDENTIAL STRUCTURES PER LOT OR PARCEL,** are followed.

5. IMPERVIOUS SURFACES

Stormwater runoff from impervious surfaces, such as rooftops, driveways, patios and other surfaces that do not allow rapid infiltration of water into the soil, can have a significant impact on the health of the stream due to its effect on flow stability, stream temperatures, erosion and sedimentation and other impacts. Therefore, **the maximum percentage of impervious surface permitted on a lot or parcel will be as follows:**

a. For lots or parcels with less than 10,000 square feet of area, no more than 35% of the land surface may be covered by impervious surfaces.
b. For lots or parcels with between 10,000 square feet and 40,000 square feet of area, no more than 25% of the land surface may be covered by impervious surfaces.
c. For lots or parcels with more than 40,000 square feet of area, no more than 20% of the land surface may be covered by impervious surfaces.

6. NUMBER OF RESIDENTIAL STRUCTURES PER LOT OR PARCEL

In general, one single-family, permanent or seasonal residence, along with appurtenances, such as garages, storage sheds, decks, etc., per lot or parcel are permitted. However, to discourage fragmentation of large properties into smaller ones, more than one single-family residence (including "site condominiums") and appurtenances per lot or parcel may be permitted if the parent lot or parcel contains sufficient square footage, width and buildable area to meet the requirements for two or more individual lots or parcels, **and**;

a. The property owner develops **a site plan** for the parent lot or parcel showing theoretical property lines for individual lots or parcels based on Natural River

development standards, and locates any additional residences and appurtenances as if the property were divided into those separate lots or parcels, **or**;

b. For each residential structure placed so that the requirements in a. are not met, i.e. in a cluster-type setting, a portion of the parent lot or parcel containing square footage, width, depth and buildable area equal to a newly created separate legal lot or parcel is made subject to **a permanent conservation easement or deed restriction** that prohibits construction of any structures on that portion of the lot or parcel, **or**;

c. For each residential structure placed so that the requirements in a. are not met, i.e. in a cluster-type setting, the **development rights** to a portion of the parent lot or parcel containing square footage, width, depth and buildable area equal to a newly created separate legal lot or parcel are sold, donated or otherwise conveyed in perpetuity to a land conservancy, local unit of government or the State. The agency acquiring the development rights will agree in writing to refrain from development of the land in perpetuity.

7. ON-SITE WASTE TREATMENT SYSTEMS

All individual on-site waste treatment systems require a permit from the appropriate local health department. Local health departments in the watershed have established septic system setbacks from surface water bodies of 50 to 100 feet, depending on the county in which the system is constructed. It is acknowledged that these setbacks are adequate to effectively treat septic system effluent for bacteria-related human health concerns. However, the effectiveness of a 50-foot setback in preventing nutrient movement to the stream is not as clear. It is possible that additional phosphorus removal may be achieved in saturated soils as effluent moves a greater distance towards the river, particularly in areas with soils such as clay loams or sand with high iron or other metal content. A setback greater than 50 feet may also result in lower concentrations of nutrients reaching the river simply by the additional dilution factor.

For the above reasons, all **new and replacement septic systems must be constructed so that:**

a. No part of the drain field is less than 100 feet from the river's edge or any surface or subsurface drain, and;

b. The drain field and septic tank are not located within the 100-year floodplain, a wetland area or the native vegetation buffer, and;

c. The bottom of the drain field is at least 4 feet above the seasonal high groundwater table.

If it is feasible to construct an on-site system with innovative treatment technology that will result in a higher level of waste treatment than from a conventional system, the setback from the river's edge may be reduced to 50 feet or the landward edge of the native vegetation buffer, whichever is greater, provided no part of the system is located in the 100-year floodplain or a wetland.

Drywells (seepage pits) or earth privies are prohibited unless they are permitted by the local health department and site conditions do not allow proper installation of a septic tank/soil adsorption system. If a drywell or privy is installed, it must be a minimum of 100 feet from the river's edge. The bottom of the pit must be at least four feet above the seasonal high groundwater level. If this is not feasible, a water-tight vault to receive waste will be installed.

8. OTHER WASTE DISPOSAL

No unsightly or offensive material, including trash, junk cars, junk appliances, garbage, tires or other refuse shall be dumped, disposed of or stored in the Natural River District. Landfills and disposal of any solid or liquid waste, other than subsurface disposal of effluent from individual waste treatment systems related to normal operation of the systems, are prohibited in the Natural River District. Disposal of sludge from wastewater treatment facilities or individual on-site waste disposal systems is prohibited in the Natural River District.

9. DOCKS

Construction of docks along streams in the Pine River system is <u>strongly</u> discouraged, especially on streams not large enough to require watercraft access, due to the visual impact, potential for debris collection, likelihood of damage and downstream movement of the structure due to high water or ice and potential hazards presented to anglers and watercraft users. However, if necessary to provide safe and ecologically sound access for the riparian landowner, seasonal or permanent **docks may be constructed not to exceed 4 feet in width nor more than 12 feet in length with no more than 4 feet of the dock extending over the water**. Permanent docks also require a permit from the Department of Environmental Quality. The use of natural materials and camouflage is encouraged. Property owners are encouraged to build "log-sod covered" docks if conditions allow (see Appendix D).

10. HEIGHT OF STRUCTURES

The height of a structure can have a significant visual impact, both for the river user and surrounding property owners. Therefore, **new structures must be no more than 2 1/2 stories and/or 35 feet high, whichever is less**. Walkout or other basements are not included in the minimum story/height requirements.

11. LAND ALTERATION

Alteration of sensitive areas such as wetlands and floodplains can severely alter the natural character of the river corridor, drastically change the flood storage capacity of the area, reduce the pollutant filtering capability of the river corridor and destroy valuable wildlife and fisheries habitat. Therefore, **dredging, filling or other land alteration activities**

within the 100-year floodplain or in wetlands within the Natural River District is prohibited. Draining wetlands in the Natural River District is also prohibited.

Ponds may be constructed within the Natural River District if:

a. The pond is not constructed in a wetland or the 100-year floodplain.
b. The pond meets the building setback established for the area.
c. Spoils are placed in a non-wetland, non-floodplain area landward of the native vegetation buffer.
d. The pond is not connected to the river by any surface or subsurface drainage system.

Alteration of bluffs can have a negative visual impact and in some cases can result in increased potential for erosion of a previously undisturbed bluff. Therefore, **alteration of the natural contour of the face of a bluff or the land from the crest of the bluff to the minimum bluff setback line is prohibited**, except for minor landscaping activities between the crest of the bluff and the minimum bluff setback line. In some cases, reduction of the slope of an eroding bluff for erosion control purposes may be necessary and is permitted upon approval of the appropriate zoning authority.

12. STAIRWAYS

Stairways to provide access to the river on a steep slope where no other access is feasible can help prevent creation or exacerbation of an erosion problem. Therefore, **stairways for river access are permitted upon approval of the zoning administrator, if:**

a. There is no other safe, feasible access to the river; and;
b. Stairways are low-profile, no more than four feet wide and constructed without cutting into the streambank, slope or bluff, unless site and soil conditions dictate that a recessed stairway better meets the goals and objectives of Natural River designation, and;
c. There are no landings associated with the stairway.

A single handrail may be permitted if necessary to provide safe access for the property owner. Only one river access stairway per lot or parcel will be permitted. Other stairways that meet the minimum building setback requirement are permitted

13. SIGNS

Signs for identification, direction, resource information, regulation of use and those related to permitted uses are allowed. Signs for the sale of products or services are prohibited, unless related to a permitted use, located on the site of the permitted use, not located in the native vegetation buffer and not visible from the river. Illuminated signs are prohibited. Signs may be no more than 2 square feet in area. Exceptions include one real estate sign no more than 4 square feet outside the native vegetation buffer, and public agencies' signs no larger than 10 square feet, of rustic design and not attached to vegetation.

Some public agency signs may need to be larger to warn of impending danger or for interpretative or historic reasons.

14. DAMS

Construction of new dams on designated river segments is prohibited. Dams are in direct conflict with many of the goals of Natural River designation. They drastically alter the free-flowing condition of the stream and can severely impact fish populations by blocking fish migration, warming water temperatures over preferred levels and blocking downstream movement of woody debris.

Failure of an existing dam can have devastating effects on habitat and species for miles downstream of the failure. However, since dams existing at the time of designation are considered legal non-conforming structures, **reconstruction of dams destroyed by a catastrophic event such as a major flood event may be permitted. However, reconstruction of a dam that fails due to lack of maintenance or other negligence by the operator or owner of the dam is prohibited**. Such owner/operators have demonstrated themselves to be poor stewards of the resource, and should not be given the opportunity to construct another dam that may fail again due to poor maintenance.

Reconstruction of a dam that failed due to a catastrophic event must comply with construction standards in effect at the time of application for replacement. Application for reconstruction must be received within one year of destruction. A reconstructed dam must be rebuilt with a height no greater than the original dam height. A bottom discharge and fish passage facilities must be provided where appropriate. A request for replacement of a dam will be handled as a request for reconstruction of a destroyed, non-conforming structure. Reconstruction of a dam also requires a permit from the Department of Environmental Quality.

15. BRIDGES

For the purposes of this plan, **a bridge is defined as a structure of any span length designed to provide a pedestrian or vehicle stream crossing**. Mainstream standards apply to the mainstream of the Pine River, and the portion of the North Branch of the Pine River from its confluence with the East Branch Pine River upstream to its confluence with Spalding Creek. Tributary standards apply to all other designated segments of the Pine River system.

Bridges have both positive and negative aspects. They provide access to a property owner's land that might not otherwise be accessible, and can prevent streambank erosion at sites where crossing the stream might be accomplished by wading or driving a vehicle through it in the absence of a bridge. Conversely, even properly constructed bridges are a major visual intrusion on the natural character of a river corridor, require removal of a portion of the native vegetation buffer to access the bridge, can result in wetland and floodplain fill and can result in sedimentation of the stream during construction. If not properly designed and

installed, bridges can create long-term erosion problems, block fish passage, cause flooding problems, collect debris, and severely alter the integrity of the streambed and the free-flowing condition of the stream.

Therefore, **the following standards apply when constructing new or replacement bridges**:

All Designated Segments

a. **All new or replacement bridges** must meet all provisions of 1994 PA 451, Inland Lakes and Streams Part 301, Wetlands Protection Part 303, Floodplain Regulatory Authority Part 31 and Soil Erosion and Sedimentation Control Part 91.
b. **All existing bridges that are destroyed** by any means, whether on a tributary or mainstream segment, may be replaced. On mainstream segments, destroyed pedestrian bridges may not be replaced with vehicle bridges. Destroyed bridges must be replaced within 18 months of destruction or the replacement bridge will be subject to new bridge standards.

c. **New bridges are not permitted on any lot or parcel that is created after the effective date of rules or ordinances implementing this plan.**

Mainstream

a. **New bridges are not permitted on mainstream segments**.
b. All replacement bridges on mainstream segments must span the base flow channel, have a minimum clearance of 5 feet between the ordinary high water mark and "low steel" (the bottom of the bridge deck and/or deck supports other than abutments), and be a structure with a natural bottom, i.e. no pipe, box or arch culverts.

Tributaries

a. **New pedestrian bridges are permitted on all tributaries**, upon receipt of a permit from the DEQ and the appropriate zoning authority, provided the lands connected by a new bridge were, at the time of adoption of the rules or ordinances that will implement this plan, and continue to be collectively owned by a single party (or parties in the case of joint ownership of the entire land area on both sides of the river).
b. **New permanent vehicle bridges on tributaries may be allowed by special use permit**, if:
    i. No legal access to the land by public road or legal easement exists within one mile of the portion of the lot or parcel that is currently accessible by road or legal easement, and;
    ii. The lands connected by the new bridge were, at the time of adoption of the rules or ordinances that will implement this plan, and continue to be collectively owned by a single party (or parties in the case of joint ownership

of the entire land area on both sides of the river - see c. below for exceptions), and;

iii. The purpose of the bridge is to gain access for timber management, agricultural activities, house construction when no other buildable site exists, or other activity where the need can be demonstrated and applicable development standards can be met, and;

iv. A suitable crossing site exists where sediment delivery to the stream and wetland fill can be minimized.

NOTE: **Temporary vehicle bridges on tributaries for the purpose of access for timber harvest may be permitted** without a special use permit upon approval of the appropriate zoning authority, provided they are constructed in a manner that minimizes disruption of the stream and are removed immediately after harvesting activities. Disturbed areas in the native vegetation buffer must be re-planted with native vegetation similar to the vegetation that was removed, any fill placed must be removed and the land must be returned to its original grade as soon as possible after removal of the bridge. Proper erosion/sedimentation control methods must be used during placement and use of the bridge.

c. **New bridges linking properties in separate ownership will not be permitted** except in areas where construction of such a bridge to access a permitted building site will result in less resource damage than construction of another type of permitted access. The exception will only apply to lots or parcels that were created before the effective date of rules or ordinances implementing this plan.

d. **Only one bridge is permitted** to access a portion of land that is otherwise inaccessible from the owner's contiguous property.

e. **Permanent new bridges on tributaries must**:

i. Span the base flow channel and be a structure with a natural bottom, i.e. no pipe, box or arch culverts, and;

ii. In the case of pedestrian bridges, be constructed such that use by any motorized vehicles, including dirt bikes, ATVs, etc., is excluded.

f. **Permanent bridges replacing bridges that have natural bottoms on tributaries must**:

i. Span the base flow channel and be a structure with a natural bottom, i.e. no pipe, box or arch culverts, and;

ii. In the case of pedestrian bridges, be constructed such that use by any motorized vehicles, including dirt bikes, ATVs, etc., is excluded.

g. **Permanent bridges replacing bridges without natural bottoms on tributaries must**:

i. Span the base flow channel, and;

ii. In the case of pedestrian bridges, be constructed such that use by any motorized vehicles, including dirt bikes, ATVs, etc., is excluded.

16. NEW COMMERCIAL USES IN THE NATURAL RIVER DISTRICT

Commercial uses such as gas stations, motels, retail stores, etc., often result in very intense use and include large areas of impermeable surface such as rooftops and parking lots that

channel stormwater runoff to the stream. These type uses are not generally compatible with a Natural River setting. To maintain the natural character of the river corridor, development in the Natural River District will generally be restricted to residential uses. However, **certain commercial uses that are compatible with the natural setting desired in the river corridor may be permitted upon receipt of a special use permit.** Commercial uses that are permitted must not conflict with the goals and objectives of Natural River designation. A commercial use may only be permitted if the property owner demonstrates that there is a compelling reason to locate the use within the Natural River District if contiguous property under the same ownership is available outside the District. **Commercial uses that may be allowed within the Natural River District include:**

a. <u>Rental cabins</u>

Rental cabins may be permitted in the Natural River District, subject to the following development standards:

1. The number of cabins permitted shall be based on the rate of **1 cabin per 200 feet of frontage.** Clustering of rental cabins is permitted and encouraged, however the ratio of 1 cabin per 200 feet of river frontage will not be exceeded. For each cabin placed in a cluster-type setting, a portion of the parent lot or parcel containing square footage, width, depth and buildable area equal to a newly created separate legal lot or parcel as described in the "**MINIMUM LOT OR PARCEL SIZES**" section of this plan will be made subject to a permanent conservation easement or deed restriction that prohibits construction of any structures within that portion of the lot or parcel, or the development rights to a portion of the parent lot or parcel containing square footage, width, depth and buildable area equal to a newly created separate legal lot or parcel as described in the "**MINIMUM LOT OR PARCEL SIZES**" section of this plan will be sold, donated or otherwise conveyed in perpetuity to a land conservancy, local unit of government or the State. The agency acquiring the development rights will agree in writing to refrain from development of the land in perpetuity.
2. **The size of each cabin shall not exceed 900 square feet and one story in height**. The cabin shall contain sleeping accommodations for more than eight people.
3. **Each cabin shall be set back a minimum of 200 feet from the ordinary high watermark**. All associated buildings and structures shall be located outside of the Natural River District.
4. Temporary recreational facilities, including tents, camper trailers and recreational vehicles shall be located outside of the Natural River District.
5. Each cabin shall be a minimum of 75 feet from the property line of adjacent riverfront properties.
6. Establishment of **vegetative buffers** along side or back lot or parcel lines may be required for rental cabins that are adjacent to existing residential uses. Buffers shall consist of plant material that is indigenous to the area in a strip at least 20 feet wide composed of deciduous trees interspersed with coniferous trees to be spaced not more than 10 feet apart. Deciduous trees shall be a minimum of 8 feet

in height and coniferous trees a minimum of 5 feet in height at the time of planting. The buffer shall also include dense shrubs placed not less than 5 feet apart having a minimum of 3 feet in height when planted. The entire buffer shall be maintained in at least as healthy a condition as when planted.

7. **Docks may be constructed for the private use of occupants of the rental cabins**. Permanent and seasonal docks shall comply with the general standards for docks and all of the following provisions:
   i. Docks shall be no larger than 4 feet X 12 feet, with no more than 4 feet of the dock extending into the water.
   ii. Docks may be constructed at the rate of 1 dock per 1,000 feet of frontage. If the property in question contains less than 1,000 feet of frontage, one dock will be permitted.
   iii. Docks will be constructed of natural materials that blend with the natural surroundings.
   iv. Access to a dock or docks will be along a single designated footpath no more than 4 feet wide to minimize disruption of the native vegetation buffer.
   v. Any steps or stairs necessary on the streambank to access the dock shall be constructed without cutting into the streambank, unless site and soil conditions indicate that a recessed stairway will better meet the goals and objectives of designation.

b. <u>Campgrounds</u>

In order to direct use to specific locations in the river corridor, thereby alleviating the litter and erosion problems associated with uncontrolled dispersed camping, **new private campgrounds may be permitted in the 400-foot Natural River District, provided a special use permit is obtained**. New campgrounds will comply all of the following standards:

1. Commercial buildings associated with the campground are prohibited in the District.
2. All non-commercial permanent structures shall be at least 200 feet from the river's edge.
3. Campsites are permitted at a density of no more than 4 sites per acre of land that is located in the District and is landward of the native vegetation buffer.
4. A 100 foot-wide native vegetation buffer along the river will be maintained.
5. Campsites that accommodate wheeled motor vehicles will be at least 200 feet from the river's edge.
6. Walk-in campsites will be landward of the native vegetation buffer.
7. Docks may be constructed at the rate of one 4 foot x 12 foot dock for each 200 feet of river frontage, accessed by a single footpath no more than four feet wide.
8. No motorized vehicle access to the river is permitted.

Launching or retrieval of commercial watercraft, other than by registered campers on-site, is prohibited at any newly developed campground.

c. Agriculture

Agricultural activities, if located in close proximity to the river without adequate buffers, can result in degradation of water quality, removal of critical streamside vegetation and sedimentation of the stream. However, with proper location of these activities relative to the river's edge, most such concerns can be addressed. Therefore, **agriculture, including general and specialized farming, is permitted in the Natural River District**. New agricultural activities, including growing crops, grazing cattle and others, are not permitted within the native vegetation buffer. Such agricultural activities do not require a zoning permit. However, construction of any structure does require a permit. New aquaculture facilities, expansion of existing aquaculture facilities, and new or expansion of existing concentrated animal feeding operations are not permitted within the Natural River district. Structures, including residences, outbuildings, fences and other structures, must meet the minimum building setback standard described in "**BUILDING SETBACKS**."

It is common agricultural practice to rotate the use of fields. Some previously used fields may be located within the native vegetation buffer. Therefore, **the resumption of prior agricultural uses in the native vegetation buffer is permitted, provided the cessation of use was:**

1. Within 10 years of resumption of use, or;
2. Due to implementation of a management plan written prior to adoption of rules or ordinances implementing this plan, or;
3. The result of written agreements with a governmental agency or agencies entered into prior to adoption of rules or ordinances implementing this plan, or;
4. The result of written agreements with a governmental agency or agencies entered into after adoption of rules or ordinances implementing this plan, where the term of cessation of use specified in the agreement is for 10 years or less, or;
5. Required or imposed by a governmental agency or agencies.

d. Home occupations

Home occupations, such as beauty shops, real estate businesses, insurance businesses, etc., are permitted, subject to the following provisions:

1. The use of the dwelling unit, or related structure, for the home occupation must be clearly incidental and subordinate to its use for residential purposes.
2. Equipment, supplies or a process will not be used in a home occupation if it creates noise, vibration, fumes, odors or electrical interference that is detectable off the premises.

Businesses that are considered "home-based occupations," i.e. the actual business is conducted off-site but some equipment such as logging trucks or a water well drilling rig is stored at the home site, are permitted. However, activities that would result in effects such as listed in 2. above, are not permitted on-site.

e. Mineral extraction

Extraction of minerals is necessary for human existence. However, activities associated with mineral extraction can have significant negative impacts on a river environment, including habitat destruction, ground and surface water contamination, fragmentation of forests, stream sedimentation and others. Therefore, **new development, exploration or production of oil, gas, brine, sand and gravel or other minerals that requires disturbance of the surface is not permitted within 300 feet of any designated river segment** (this is the maximum private land setback for this activity authorized by Natural Rivers Part 305). Companies involved in such activities are encouraged to coordinate exploration and extraction activities and location of access roads to minimize habitat disruption.

f. Forest management

New commercial forest management activities are allowed without a permit landward of the native vegetation buffer. Any permanent structures related to forest management activities and all temporary structures placed on-site for more than 30 days must meet building setbacks. Forest management activities within the native vegetation buffer require a permit from the appropriate zoning authority and are subject to the standards outlined in the "**NATIVE VEGETATION BUFFER**" section of this plan.

g. Prohibited new commercial uses

New golf courses, or expansion of existing golf courses, are prohibited within the Natural River District.

New watercraft liveries, expansion of existing liveries, or expansion of commercial launching or retrieval of watercraft in the designated portions of the river system is prohibited.

New or expanded diversions of water from a designated river for commercial purposes is prohibited if it is determined that such a diversion will negatively impact aquatic life or other riparian owners.

All other new commercial uses are prohibited in the Natural River District.

17. NEW INDUSTRIAL USES IN THE NATURAL RIVER DISTRICT

New industrial uses are prohibited in the Natural River District.

18. LEGAL NONCONFORMING LOTS, STRUCTURES AND USES

NOTE: In this section, the term "lot" means lot or parcel.

Legal nonconforming lots, structures and uses are those that were legal before designation of the Pine River system as a Michigan Natural River, and that will become or remain nonconforming upon adoption of local zoning ordinances or State zoning rules based on the use and development standards in this plan. They are commonly known as "grandfathered" lots, structures and uses. It is the long-term goal of any zoning ordinance to reduce the number or mitigate the impact of these structures, lots and uses, thus better realizing the goals of establishing the zoning district.

a. Nonconforming lots

Legal nonconforming lots are those that were legally established before the adoption of ordinances or rules implementing this plan, and that now do not meet one or more dimensional standards such as minimum lot width or minimum lot area. **These lots are subject to all of the following:**

1. When the combination of 2 or more contiguous nonconforming lots owned by the same person results in greater conformance with the dimensional requirements in the Natural River zoning ordinance or rule, **the lots must be combined prior to erection of a structure** on those lots by that property owner. This provision does not apply to lots in a plat established prior to adoption of rules or ordinances implementing this plan if more than 50% of the lots in the plat contain a single-family residence. A property owner may sell any legally established nonconforming lot that has not been combined with another lot.
2. **Establishment of a principal use such as a single-family residence on a legal nonconforming lot will be permitted without the need for a variance, if**:
    i. The principal use meets all development standards except the minimum lot width and/or minimum lot gross square footage requirements, and;
    ii. The owner of the nonconforming lot does not own other contiguous properties that, if combined with the nonconforming lot, would result in increasing the conformity of the lot, as described in 1. above.
3. **Establishment of a principal use will not be permitted** on a nonconforming lot that does not comply with the provisions of 2. above without a variance from the appropriate zoning authority.

b. Nonconforming uses

Legal nonconforming uses are types of use, such as industrial or intense commercial use, that were legally established before adoption of ordinances or rules implementing this plan, but that are currently not permitted in the Natural River District. **Legal nonconforming uses may be continued, subject to all of the following:**

1. **The nonconforming use or structures containing the use may not be enlarged, increased, or extended to occupy a greater area of land than was occupied on the effective date of the applicable zoning ordinance or rule without a land use variance**. This does not apply to uses allowed by special use permit. Uses allowed by special use permit may be expanded upon receipt of a

special use permit if the increased use is in compliance with the special use standards in this plan.

2. Structures associated with a legal nonconforming use may not be moved to any other portion of the lot that is occupied by the use unless the move would result in greater conformity with the applicable development standards.
3. **If the legal nonconforming use of land ceases** for any reason for a period of 12 months, any subsequent use of the land must conform to the development standards for that land in the appropriate zoning ordinance or rule.
4. **A previously established lawn** in an area subject to native vegetation buffer standards is considered a nonconforming use, and is subject to standards applying to nonconforming uses.

c. <u>Nonconforming structures</u>

A legal nonconforming structure is one that was legally built prior to adoption of ordinances or rules implementing this plan, but that now does not meet one or more dimensional standards. **Legal non-conforming structures are subject to all of the following:**

1. **A legal nonconforming structure may not be enlarged or altered in a way that increases its nonconformity**, such as expanding toward the river's edge or increasing the height above the maximum height standard. However, the ground floor area of any legal nonconforming structure **may be increased by up to 50%** of the existing enclosed ground floor living area cumulative from the date of nonconformance, or to the minimum extent necessary to comply with local standards for minimum legal floor area for structures, whichever is greater, through alterations, repairs, and additions, if the increase does not increase the nonconformity of the structure. Any enlargement of a legal nonconforming structure must, to the extent possible, be in compliance with all setback and other zoning standards.
2. **Expansion of a nonconforming structure may be permitted by the zoning administrator, without the need for a variance, if:**
    i. When any part of the expansion is located within the native vegetation buffer, expansion of the structure is to the landward side of the existing structure and is less than a 50% increase in enclosed ground floor living area, and the height of the expansion is no greater than the height of the original structure, or:
    ii. When the expansion is located completely outside the native vegetation buffer, expansion of the structure is no closer to the river than the closest point of the enclosed ground floor living area of the existing structure and is less than a 50% increase in enclosed ground floor living area.
3. All other expansions of a legal non-conforming structure that do not meet the criteria in 2. above shall be treated as a variance.
4. **If any nonconforming structure is destroyed** by any means, other than by willful destruction by the property owner, to an extent that is more than 50% of its replacement cost, restoration of the structure will be treated as a variance.

Restoration of such a nonconforming structure must be approved if all of the following conditions exist:

i. The building or structure is not located on land subject to flooding (the 100-year floodplain), and;

ii. The presence of the nonconforming structure will not lead to accelerated bank erosion or other material degradation of the river resource and the construction of the structure is approved by the local soil erosion and sedimentation control enforcement agency, and;

iii. The structure conforms to county or district health codes and is approved by the local health department, and;

iv. The structure conforms to local building codes and is approved by the local building inspector, and;

v. The reconstructed structure occupies the same building area, i.e. "footprint," and contains the same square footage as the original structure, and;

vi. Application for permission to restore a damaged structure is made within 12 months of the time of damage. An extension may be granted if the property is held in probate, an insurance settlement related to the damage is in dispute or a criminal investigation related to the damage is in progress.

5. IF A NONCONFOROMRING STRUCTRE IS WILLFULLY DESTROYED BY THE PROPERTY OWNER TO AN EXTENT THAT IS MORE THAN 50% OF ITS REPLAEMENT COST, AND THE PROPERTY CONAINS SUFFUCENT DEPTH TO ACCOMMODATE A SIMILAR STRUCTURE SIGNIFICNATLY FARTHER FROM THE RIVER THAN THE LOCATION OF THE DESTROYED STRUCUTRE, PARAGRAPH 4. ABOVE DOES NOT APPLY. THE PROPERTY OWNER SHALL BE REQUIRED TO MEET THE BULDING SETBACK REQUIREMENT TO THE GREATEST EXTENT POSSIBLE WHEN CONSTRUCTING ANY NEW OR REPALCEMENT STRUCTURE.

6. A nonconforming structure may not be moved, in whole or in part, to any other portion of the lot or parcel that is occupied by the structure unless the move would result in greater conformity with the applicable zoning standards. Moving a nonconforming structure requires a zoning permit and may require a variance.

E. ***PUBLIC LANDS/PROGRAMS AND UTILITY MANAGEMENT***

The following use and development standards apply to public lands adjoining the designated segments of the river system, the river channel bordered by those public lands and to utilities and publicly provided facilities. In many cases, the Rules for Utilities and Publicly Provided Facilities adopted under provisions of section 30514 of Natural Rivers Part 305 of 1994 PA 451 also apply (see Appendix B). **NOTE: The North Branch Pine River from its confluence with Spalding Creek to its confluence with the East Branch and its adjacent lands are subject to Mainstream development standards.**

1. NATIVE VEGETATION BUFFER

Maintenance of native vegetation on public lands along streams is a critical tool in protecting water quality, preventing soil erosion and sedimentation, cooling stream temperatures, protecting and enhancing fisheries habitat, supplying energy for the river system, providing wildlife migration corridors and habitat, particularly for many sensitive species, and screening development from the river users' view. Therefore on publicly owned land along designated streams in the Pine River system, a restricted vegetative cutting zone ("native vegetation buffer") will be maintained.

The native vegetation buffer on public lands on Pine River mainstream segments includes:

a. All lands within 175 feet of the river's edge, and;
b. The entire face of a bluff where the toe of the bluff is within 175 feet of the river's edge, and;
c. The lands within 50 feet of the crest of a bluff.

NOTE: b. and c. above may result in a native vegetation buffer that extends more than 175 feet from the river's edge.

The native vegetation buffer on public lands on all other tributaries includes:

Slope of land adjacent to stream	Minimum native vegetation buffer width
0-10%	100 feet
11-20%	115 feet
21-32%	135 feet
33+%	155 feet, plus the entire face of any bluff where the toe of the bluff is within 155 feet, plus the land within 50 feet of the crest of a bluff.

All distances are measured horizontally from the ordinary high water mark (river's edge).

For the purposes of this plan, on public land a **bluff** is considered to be any slope that rises at a slope of 33% or greater to a height of at least 25 feet above the toe of the bluff. The **crest of a bluff** is considered to be the first riverward facing slope (roughly paralleling the river for at least 100 feet) that breaks to a slope of less than 18% for a distance of at least 25 feet away from the river.

Clear cutting in the native vegetation buffer is <u>prohibited</u>. Other cutting of vegetation in the native vegetation buffer is permitted for the following reasons, subject to review by the MDNR Northern Michigan Rivers Administrator in consultation with Management Unit staff for MDNR Forest, Minerals and Fire Management Division, Wildlife Division and Fisheries Division and/or US Forest Service staff. Cutting of vegetation in response to unique, unforeseen situations other than the following may be permitted upon approval of the MDNR Director:

For all designated segments:

a. Maintenance or enhancement of habitat for a State or Federal listed Threatened or Endangered Species (the width of the vegetative buffer may also need to be increased to address habitat concerns of Threatened or Endangered Species).

b. Wildlife habitat restoration and management activities on lands purchased with Federal Aid in Wildlife Restoration Act funds.

c. Harvest of "row trees," such as those in pine plantations, in order to harvest available timber and accelerate conversion of the stand to a more natural state. Such harvest should be done in several stages, leaving enough trees after each cut to avoid windthrow of the remaining trees, and leaving a minimum number of properly-spaced, healthy trees after the final cut. Native species should be planted in the harvested areas to accelerate conversion to a more natural state.

d. Disease and insect control.

e. Fire suppression (for obvious reasons, no prior approval is necessary for fire suppression activities).

f. Maintenance of existing trails, campgrounds and public access sites (minor vegetation cutting to maintain existing trails, campgrounds and access sites does not require prior approval).

g. Establishment of any new non-motorized foot trail (see "Roads and Trails" section);

h. Providing footpath access to the river for a new, walk-in access site, campground or cabin.

i. Establishment of low-impact walk-in campsites associated with a campground.

j. Maintenance of existing public road and utility corridors according to provisions of the Natural River Rules for Utilities and Publicly Provided Facilities. These rules allow mechanical cutting of tall-growing vegetation within the native vegetation buffer in utility corridors, but do not allow clear-cutting or removal of lower growing species. NOTE: FOR THE PURPOSES OF THIS PLAN AND THE ABOVE-REFERENCED RULES, THE TERMS "NATIVE VEGETATION BUFFER" AND "NATURAL VEGETATION STRIP" ARE INTERCHANGEABLE.

For the North Branch of the Pine River upstream of its confluence with Spalding Creek, the East Branch of the Pine River and Poplar Creek:

In addition to the above standards, selective cutting for wildlife habitat or timber management may be performed no closer than 100 feet from the river's edge, subject to seasonal, wetland and topographic restrictions.

For all other tributaries:

In addition to the above standards, selective cutting for wildlife habitat or timber management may be performed no closer than 50 feet from the river's edge, subject to seasonal, wetland and topographic restrictions

For all areas:

The use of wheeled, tracked or other heavy equipment is prohibited in the native vegetation buffer.

Wetlands contain some of the most diverse, productive and important habitats within river corridors. Many of the functions and values of wetlands are determined by the vegetation present in the wetlands. Therefore, although not required, it is recommended that vegetation located in a wetland that is contiguous to the required native vegetation buffer be left in its natural state.

Vernal pools (small, ephemeral ponds that result from spring rains and snowmelt but "disappear" as the season progresses) have been shown to be of great value to a wide variety of species at a critical time of the year. Particular attention should be paid to leaving vegetation within these areas and in a vegetated buffer of up to 100 feet wide around these ponds. For ponds that are located entirely outside the required native vegetation buffer, a connecting corridor of natural vegetation at least 100 feet wide should be left between the pond and the native vegetation buffer whenever possible.

2. VEGETATION IN THE STREAM CHANNEL

Vegetation in the stream channel, particularly large woody debris, provides critical fish habitat, maintains complex stream channel morphology, creates a diversity of water velocities and provides substrate for aquatic invertebrates. For these reasons, it is important to leave as much vegetation in the stream channel as possible. However, larger stream segments are multiple use areas, with watercraft use being an important recreational component of some areas. Therefore, subject to review by the MDNR Northern Lower Michigan Rivers Administrator in consultation with MDNR Fisheries Division and Forest, Minerals and Fire Management Division staff and/or USFS staff, **the following standards for removal of vegetation in the stream channel will apply:**

a. **On the Pine River system upstream of the confluence of the North Branch and East Branch, and on all other designated tributaries**, vegetation in the stream channel, including trees, logs and other large woody debris, will not be disturbed except to alleviate flooding that threatens buildings.
b. **On the mainstream of the Pine River downstream of the confluence of the North Branch and East Branch**, vegetation in the stream channel may be selectively pruned to allow clearance of a passage generally no more than 8 feet wide for safe navigation and to the extent necessary to alleviate flooding that threatens buildings.
c. Portions of trees, logs and other natural material imbedded in the stream channel will not be disturbed.

3. CAMPGROUNDS

Well-designed, properly located and constructed campgrounds in proximity to the river can provide the recreating public a rewarding camping experience and serve to foster appreciation of the river environment. They can also function to concentrate use in controlled areas, thereby helping to prevent resource damage associated with dispersed

camping by large groups. However, campgrounds along the river can generate intense use over short periods of time. Such use can result in many of the same impacts as residential use, such as streambank erosion, vegetation removal and increased runoff to the stream.

Therefore, **the following standards will apply for new public campgrounds in the Natural River District:**

a. New public **campgrounds will be primitive** in nature and designed for low intensity use.
b. **Campsites that accommodate wheeled motor vehicles** will be placed landward of the native vegetation buffer.
c. **Walk-in campsites** may be placed within 100 feet of the river's edge when it is possible to establish these sites with a minimum of woody vegetation disturbance.
d. Campsites will be at a density of no more than **4 sites per acre** of land located between 100 feet and 400 feet from the river's edge.
e. **A single footpath**, no more than four feet wide, from the campground to the river is permitted.
f. **Docks** may be permitted for new campgrounds on the mainstream of the Pine River downstream of Raymond Road. If a dock is necessary to provide safe access to the river or to prevent resource damage, the single permitted footpath mentioned in e. above will lead to the dock. The dock will be no more than four feet wide and twelve feet long with no more than four feet of the dock extending into the river. Docks will be located where they do not require a stairway leading to the river's edge.
g. On all designated streams, camping is permitted only at designated campgrounds, or on State lands landward of the native vegetation buffer.

The Department of Natural Resources has considered re-establishing a campground at the **"State 40"** site on the Pine River, near Meadowbrook Bridge. However, DNR will not re-establish a campground at this site at this time.

The Pine River Citizens Advisory Group has identified 15 sites along the Pine River mainstream where the public camps and accesses the river and where this activity is causing an erosion problem (see table 11). DNR will evaluate these sites to determine where measures should be taken to rehabilitate those areas within the native vegetation buffer and restrict vehicle access and camping.

Camping on Federal lands in the Pine River Federal Scenic River Corridor downstream of Lincoln Bridge is prohibited except at designated campgrounds.

4. PUBLIC ACCESS SITES

Adequate access to the river is critical to providing the public with an enjoyable river experience. However, erosion at some access sites is a leading contributor of sediment to the stream system.

All existing developed public access sites administered by MDNR Forest Management Division in the watershed have been evaluated to determine necessary modifications in order to protect the river's values and public safety. The DNR will perform a similar evaluation of access sites administered by Parks and Recreation Division, and for all informal access sites currently in use on State land. Necessary modifications may include planting of additional native vegetation, modification of boat access areas to reduce the potential for erosion, repair of deteriorated and unsafe stairs and boat access areas and other measures. The Department of Natural Resources shall pursue cooperative agreements with area Soil Conservation Districts, river restoration committees and other groups to assist in implementing the necessary modifications to sites.

If it is determined that new fishing/canoeing access sites are necessary in the future, sites will be "walk-in" only. All parking areas will be unpaved and, along with associated structures, be located landward of the native vegetation buffer. The parking areas should be designed to direct runoff away from the river. A single trail leading to a small streamside access area may be constructed to allow access by foot, and by persons with disabilities if site conditions allow, but no access to the river for motorized vehicles, except motorized wheelchairs or similar mobility aids for persons with disabilities, will be permitted.

If in the future it is determined that, because of increased intensity of use, a new vehicle-accessible boat access is needed, it shall be constructed so as to minimize erosion and sedimentation to the river, be limited in size and placed so as to be as unobtrusive as possible. All associated structures and parking areas shall be placed landward of the native vegetation buffer.

Camping will not be permitted at any State administered public access site in the watershed unless there are a limited number of primitive, designated campsites clearly identified at the site. Establishment of campsites at these access sites will be subject to the development standards in the public "Campgrounds" section of this plan. Camping other than at designated sites will not be permitted within ¼ mile of any access site.

5. PUBLIC RENTAL CABINS

Publicly-owned cabins can result in resource impacts similar to residential construction. However, proper design and construction can alleviate many of those potential impacts and provide the river user with a different type of "camping" experience.

No construction of public rental cabins in the Pine River corridor is planned at this writing. However, **future public cabins available by reservation only may be constructed under the following conditions**:

a. Cabins will be landward of the native vegetation buffer (see "**NATIVE VEGETATION BUFFER**" section).
b. Cabins will be placed a minimum of 300 feet apart.

c. Each cabin will be no more than one story in height and shall have no more than 900 square feet of floor area.
d. Access roads, if necessary, will be developed landward of the cabins.
e. Additional vegetative buffers may be required for cabin sites located near residential uses.

6. ROADS AND TRAILS

Construction of roads in the river corridor often results in introduction of impervious surfaces and increased runoff, vegetation removal, wetland and floodplain fill and habitat disturbance. Trails can provide an enjoyable recreational experience, but improperly located trails can also result in excessive erosion and vegetation removal.

Therefore the following standards will apply to construction of new public roads and trails.

a. **Roads that are an integral part of subdivisions, site condominium developments, planned unit developments or other concentrations of residential structures may be constructed** provided they meet the minimum private land building setback requirement, with no reduction in setback based on bank height. All other new public roads, including all classes of county roads, State and interstate highways, forest roads and all other roads constructed and maintained by a public agency or utility, must be constructed outside the 400-foot Natural River District.
b. **New public road/stream crossings are prohibited.**
c. **To the maximum extent feasible**, **all replacement public road/stream crossing structures must span the base-flow channel of the stream**. Structures with natural bottoms are strongly recommended, particularly on mainstream segments.
d. All public road/stream crossings must comply with the provisions of the Natural River Rules for Utilities and Publicly Provided Facilities. All road/stream crossing projects will be reviewed by the appropriate Department of Environmental Quality and Department of Natural Resources staff before, during and after construction to ensure compliance with permit conditions. Public road agencies are strongly encouraged to improve road/stream crossings that are contributing sediment to the stream system.
e. **New ORV/ATV trails are prohibited** in the Natural River District (within 400 feet of the river's edge). Existing ORV/ATV trails within the Natural River District will be evaluated, an inventory of areas showing resource damage within the Natural River District performed, and measures to correct those problems implemented. Rehabilitation of damaged areas of such trails within the Natural River District will receive high priority for funding. If relocation of an existing trail is appropriate and feasible, the trail will be relocated outside the Natural River District.
f. **New equestrian trails, snowmobile trails or mountain bike trails are prohibited within the native vegetation buffer**.

g. **New, unpaved (except for occasional low-profile boardwalks to prevent damage to wetland areas), non-motorized trails** designed for foot or cross-country ski traffic are permitted. They must be primarily located a minimum of 100 feet from the river's edge, but may include occasional loops to the river's edge, with generally no more than 50 feet of the side loop located within 10 feet of the stream. Such loops may be located as topography dictates, but will not be located more than one for every 1/4 mile of main trail. Loops near the river's edge will not be constructed in wetland areas. No docks or other structures will be constructed or placed in association with the loops. New trails may not cross a designated mainstream segment. Crossings of designated tributaries will be kept to a minimum, span the base-flow channel of the stream, have a natural bottom, be located in primarily upland areas and be constructed of timber.

7. MOTOR VEHICLES IN THE NATURAL RIVER DISTRICT

Uncontrolled access to the river's edge by motor vehicles can result in significant streambank erosion, compaction of soil, littering, trash dumping on public lands and vegetation removal. Therefore, **use of any motor vehicle on State land within 400 feet of the river's edge is prohibited unless on a designated public road, an access road to a designated campground, public access site or trail-head, or other road or trail posted "Open."** Emergency vehicle use and vehicle use for official work duties by public employees is permitted within the District on roads other than those described above. Department of Natural Resources staff will consult with citizens to determine what traditional access roads should remain open and which should be closed.

8. MINERAL EXTRACTION

Extraction of minerals is a necessary part of human existence. Minerals provide fuel and other materials to allow people to conduct daily activities. However, mineral extraction activities can also be disruptive to surface and subsurface resources. Erosion and sedimentation, vegetation removal, surface and groundwater contamination and increased runoff are all potential impacts of some types of mineral extraction.

Therefore, **the following standards will apply to new mineral extraction activities on public land**:

a. **New mineral extraction activities**, including gravel mining, oil and gas drilling and any other mineral extraction activity, are prohibited within 1/4 mile of the river's edge on public land, subject to variance procedures for activities on leases granted prior to adoption of this management plan.
b. **New State-owned mineral right leases** for any parcel of land on which any portion of that parcel is within 1/4 mile of the river's edge will be granted as "non-development" leases only, prohibiting disturbance of the surface.
c. **No surface use permits** will be granted for any mineral extraction activity within 1/4 mile of the river.

d. **No new drilling permits will be granted on new leases** for extraction of State or Federally owned minerals within 1/4 mile of the river's edge if such extraction would result in disturbance of the surface within 1/4 mile of the river's edge.

e. **Relatively non-disruptive exploration activities**, such as seismic testing, will be allowed landward of the native vegetation buffer if there is a reasonable expectation that minerals discovered through this activity may be extracted using methods that will not disturb the surface within 1/4 mile of the river, i.e. directional drilling.

MDNR will pursue development of a Memorandum of Understanding with MDEQ Geological Survey Division to implement these standards.

9. PIPELINE AND OTHER UTILITY STREAM CROSSINGS

If properly performed, pipeline, electric or communication line and other similar underground stream crossings can be non-disruptive activities. Improper crossings, however, can be a major source of habitat disruption, erosion and stream sedimentation.

Therefore, **pipeline, electric or communication line, or other similar crossings are subject to the following:**

a. **On public land**, all pipeline, electric or communication line or other similar crossings will be accomplished by boring under the streambed. The entry and exit point for the pipe or line shall be landward of the native vegetation buffer and not located in a wetland (the entry and exit points for the pipe or line may be closer than the landward edge of the native vegetation buffer if located in a road right-of-way and not resulting in significant disturbance of vegetation or wetlands, subject to approval by the MDNR Northern Michigan Rivers Administrator).

b. **On private land, with the exception of electric transmission lines referenced in the Rules for Utilities and Publicly Provided Facilities and electric service lines to permitted uses on tributaries**, all pipeline, communication line, primary electric distribution line or other similar stream crossings will be accomplished by boring under the streambed. The entry and exit point for the pipe or line shall be landward of the native vegetation buffer and not located in a wetland (the entry and exit points for the pipe or line may be closer than the landward edge of the native vegetation buffer if located in a road right-of-way and not resulting in significant disturbance of vegetation or wetlands, subject to approval by the MDNR Northern Michigan Rivers Administrator).

c. **On private land along tributaries**, overhead electric service line stream crossings are permitted upon approval of the appropriate zoning authority. In the native vegetation buffer beneath these lines, tall-growing tree species may selectively removed. Shrubs, low-growing tree species with a mature height of less than 20 feet and other native vegetation may not be removed.

d. If an **alternative method of constructing a crossing** can be shown to be less disruptive to the resource than the method described in a. and b. above, it may be permitted by the Northern Michigan Rivers Administrator.

e. Activities must comply with all applicable provisions of the Rules for Utilities and Publicly Provided Facilities developed under section 30514 of Part 305 of 1994 PA 451 for erosion and sedimentation control, blocking of damaging ORV access, cutting in the native vegetation buffer and others. NOTE: FOR THE PURPOSES OF THIS PLAN AND THE ABOVE-REFERENCED RULES, THE TERMS "NATIVE VEGETATION BUFFER" AND "NATURAL VEGETATION STRIP" ARE INTERCHANGEABLE.

10. LAND ALTERATION

Wetland and floodplain areas in the river corridor provide critical wildlife and fisheries habitat, maintain flood storage capacity, filter runoff, provide groundwater recharge areas and perform many other valuable functions. Protection of these areas is critical to maintaining the health, diversity and natural character of the river.

Therefore, land alteration on public lands is subject to the following:

a. **Excavation, draining or filling** of wetlands and excavation or filling of 100-year floodplain areas within 400 feet of the river's edge is prohibited.
b. **Land alteration of any area within the native vegetation buffer** is prohibited except for minor alterations associated with permitted activities such as establishing foot trails, minor alterations related to maintenance of existing facilities or bank stabilization activities.
c. **Land alteration of wetland/floodplain areas greater than 400 feet from the river's edge** for wildlife habitat management or other purposes is permitted upon receipt of proper permits from the Department of Environmental Quality, but such activity is discouraged within 1/4 mile of the river's edge.

11. RIVER RESTORATION/BANK STABILIZATION

Stabilization of eroding streambanks on designated Natural Rivers is a controversial practice. Over time, rivers naturally erode banks, change course and transport sediment. However, this process has been greatly accelerated by human activities over the past 150 years. These activities include catastrophic events such as dam failures and the logging boom of the last half of the 19th century, and more subtle activities such as unrestricted access by canoeists, anglers and other recreational users. Erosion has also been accelerated by removal of streamside vegetation during construction and maintenance of residences and businesses. This activity can also, over time, result in less stable flows in the river, leading to greater erosive velocities during high water periods. It is clear, therefore, that not all eroding streambanks are the result of naturally-occurring events.

Sedimentation as a result of excessive erosion leads to degraded fisheries habitat in the form of buried spawning beds and insect habitat, streams becoming wider and shallower and thus more susceptible to the sun's warming rays, and in rare cases, direct mortality of fish from excessive sediment. Eroding banks can also threaten buildings which, having been built too close to the river bank, are in danger of falling into the river.

In order to restore some of the historic fisheries habitat in the Pine River system, and to protect structures on public and private property**, stabilization of streambanks is permitted. However, certain restrictions must apply.**

It is strongly encouraged that vegetative stabilization methods be used on all sites that are appropriate. The use of "soft armor" manufactured materials such as biodegradable erosion control blankets, pre-vegetated mats, rolled fiber logs and others should be evaluated where feasible. If riprap must be used to stabilize the toe of the slope, only natural fieldstone, i.e. glacial cobble, may be used. The minimum amount of riprap to stabilize the bank will be used, with vegetative methods used to stabilize the upper portions of the bank whenever possible. The top line of riprap should be varied in height to minimize the visual perception of a "lined channel."

A restoration committee has been formed to stabilize large numbers of streambanks on the Pine River. Also, individual landowners with a significant amount of stream frontage occasionally desire to stabilize a great number of erosion sites on their property. Most of the erosion sites have historically been stabilized using rock riprap, sometimes in conjunction with other methods. In order to more naturally stabilize these areas, some sites should be stabilized by strictly vegetative methods, such as brush bundles, live staking, live fascines or "soft armor" materials described above in areas where site conditions are suitable for such techniques. Sites should be prioritized with respect to the amount of sediment delivered to the stream, with sites treated on a "worst first" basis.

When choosing erosion sites to be stabilized, groups or individuals should consider the potential negative effects of gaining access to the sites. If access to a critical erosion site is not possible without cutting a temporary access road through the native vegetation buffer, alternate methods of transporting equipment and riprap to the river's edge should be used if at all possible. Any roads or trails that are created as a result of bank stabilization activity must be obliterated and restored with native vegetation immediately upon completion of the project.

Any bank stabilization project should also consider the impacts of this activity on non-fisheries species such as wood turtles or other species that may depend on eroded banks for nesting or habitation. If it is determined that the negative impacts of stabilization of a bank or banks on these species outweighs the positive impact on the fishery, the banks should not be stabilized. Particular attention should be paid to the effects of bank stabilization work on species listed as Threatened or Endangered.

Stream and reservoir bank stabilization and soil erosion control plans are being developed as part of the settlement agreement with Consumers Energy for the Manistee River from the Hodenpyl Hydro facility downstream. Specific projects will be implemented following these plans over the next several years in cooperation with the US Forest Service, US Fish and Wildlife Service, Consumers Energy and MDNR.

12. STREAM ALTERATION

Maintaining and enhancing the free-flowing condition of the river is one of the goals of Natural Rivers Part 305. Alteration of the streambed and channel can result in loss of fisheries and wildlife habitat, increased erosion and sedimentation and increased flooding. Therefore, **diversion of the stream from its existing natural channel is prohibited**, except for minor alteration of the stream channel in conjunction with improving an existing road/stream crossing.

All work below the ordinary high water mark of the stream requires approval from the Northern Michigan Rivers Administrator and a permit from MDEQ under provisions of the Inland Lakes and Streams Part 301 of 1994 PA 451.

Minor streambed alteration for placement of small docks and necessary erosion control measures is permitted. **Sediment traps** designed to capture excessive sand bedload as part of a stream restoration effort are permitted. The width of the sediment trap may not exceed the natural stream width at that location. Spoils must be placed on an upland site landward of the native vegetation buffer. Dredge pads will be seeded and mulched immediately after construction of the trap and after clean-outs. When the trap is no longer in service, the access road, dredge pad and other disturbed sites will be restored and stabilized with native vegetation.

Extensive alteration of the streambed to create stream characteristics that were not historically present in the stream is not permitted. **Fisheries habitat structures** are permitted, provided they do not interfere with navigation, are constructed primarily of natural materials, do not pose a hazard to wading anglers and are unobtrusive and generally unrecognizable as artificial structures. Habitat structures will be maintained in a safe, functioning, non-erosive condition or be removed.

13 COMMERCIAL USE OF STATE LANDS

The Department of Natural Resources is committed to addressing the many issues related to commercial use of State lands, including use of public access sites by commercial watercraft liveries. The DNR will develop a strategy to address the issue on a State-wide basis.

Commercial use of public access sites on the Pine River is an important issue for area residents and river users. Commercial watercraft liveries and drift boat operations are an important part of the local economy. They provide an opportunity to experience a river environment to people who would not normally have the option to do so. However, overcrowding of the river and access sites, and resource damage caused by large groups of watercraft users who exit the river at uncontrolled sites, can be a problem at times.

When a State-wide policy addressing commercial use of access sites is developed, it is recommended that it include provisions for requiring permits for use of public access sites

by commercial watercraft liveries, fishing guides and other commercial users. The DNR should determine a maximum number of special use permits to be allocated per day to commercial users of the access sites. This could be coordinated with US Forest Service staff, who currently administer a special use permit system on the Pine River. If fees are to be charged for these special use permits they should be earmarked for activities in the Pine River watershed, such as maintenance and improvement of existing access sites, signing and other educational efforts, re-establishment of native vegetation buffers on public lands and cost sharing with county road commissions for improved road/stream crossing replacements.

14. DAMS

Dams have a generally negative impact on a river environment, including blocking migration of fish, warming of water temperatures, blocking movement of large woody debris and fragmenting habitats. Therefore, **new dams are not permitted on any designated stream segment.** Also, in order to enhance the free-flowing condition of the river system, a long-term goal of Natural River designation is removal of existing dams that are no longer economically viable, have negative impacts on the streams' fishery that are not outweighed by other factors or that are structurally unsound.

There are several dams owned by MDNR Wildlife Division that impound areas for waterfowl and other wildlife habitat. Some of these impoundments may now or in the future be creating marginal wildlife habitat while interfering with the streams' free-flowing condition and negatively affecting the streams' fisheries by warming water temperatures and blocking fish passage. MDNR Wildlife Division periodically reviews the costs and benefits of its dams in conjunction with required dam safety inspections. If, during the course of this analysis, it is determined that a dam is not providing sufficient wildlife habitat or other benefits, the dam will be considered for removal, returning the stream to its free-flowing condition. Dams providing wildlife benefits that outweigh the negative impacts on other Natural River values will be maintained. Those dams may be modified to enhance those other values by construction of fish passage structures, bottom draw discharges and other management methods as feasible and appropriate.

Fish barriers such as weirs will not be constructed unless necessary to block sea lamprey or other harmful exotic species from migrating into a stream, and only if constructed so as to have the minimum impact on the free-flowing condition of the stream. Low-head dams and other similar barrier structures are not permitted. Electric or similar type weirs will be allowed only if demonstrated to be effective and necessary, and to have negligible impact on the free-flowing condition of the stream.

Stronach Dam on the Pine River is being removed at this writing. If it is determined that, as a result of removal of the dam, less desirable species are migrating into the Pine River and successfully competing with resident trout species, a fish barrier will be designed and constructed to block passage of fish from Tippy Dam Pond into the Pine River while maintaining the free-flowing condition of the Pine River.

The FERC re-licensing agreement with Consumers Energy addresses the provision of fish passage around hydropower projects such as Tippy Dam. Fish passage facilities will not be constructed unless it is identified in a river management plan developed with public input to be appropriate in those locations. The plan must be approved by the Natural Resources Commission and must not be opposed by the US Forest Service, the US Fish and Wildlife Service and the Federal Energy Regulatory Commission. The DNR Fisheries Division is developing a procedure to evaluate the appropriateness of fish passage at individual dam sites. The evaluation will take into account social, economic and resource impacts. This procedure will be used to evaluate the appropriateness of constructing fish passage facilities at Tippy Dam. Such facilities will not be constructed unless all the above conditions are satisfied.

15. LAND ACQUISITION AND DISPOSAL

The State may purchase private lands in the Natural River District only with the consent of the landowner. **Natural Rivers Part 305 does not authorize condemnation of private lands in the Natural River District**. Condemnation of land is not a management tool associated with the Natural Rivers Program.

In order to provide the best possible recreational experience for Michigan residents, and to protect the State's finest river resources, acquisition of waterfront land is a high priority for the MDNR. Streamfront lands in the Pine River system acquired by MDNR will not be developed except for possible campgrounds and public access sites subject to development standards discussed above. If lands are acquired, every effort will be made to acquire all rights associated with the land, including mineral rights. All buildings within the 400-foot-wide Natural River District that are acquired with those lands will be removed or destroyed. Lands within the native vegetation buffer will be allowed to revert to their natural state. Planting of native vegetation in previously disturbed areas is encouraged.

It is recommended that no public streamfront lands be transferred to private parties. However, if such lands are sold, traded or otherwise conveyed to a private party, the State will retain the development and mineral rights to the portion of land within 1/4 mile of the river's edge, and the right of public access along the river bank.

16. SIGNS

Education of the public regarding the purposes and benefits of designation is key to a successful protection program. **A DNR sign plan will be developed for the Pine River system.** Signs will be designed to identify the river system as a designated Natural River, explain the purposes of designation, emphasize that private lands along designated rivers remain private, advise the public of any watercraft controls in effect and periodically indicate approximate float times to the next public access site to discourage trespass.

17. WATER QUALITY

MDNR will work with MDEQ to develop a Memorandum of Understanding regarding implementation of a water quality sampling program to determine the baseline water quality on the Pine River system at the time of designation, and to periodically monitor changes in water quality.

Designation as a Natural River results in no special protection related to State of Michigan water quality standards unless the designation is in the "Wilderness" classification. However, since most of the streams in this system are designated trout streams, they are afforded greater protection than minimum statewide surface water quality standards would provide. All surface waters of the state are protected for, at a minimum, agriculture, navigation, industrial and public water supply, warmwater fisheries, other indigenous aquatic life and wildlife, partial body contact recreation between November 1 and April 30 and total body contact recreation between May 1 and October 31. Designated trout streams are protected for coldwater fisheries in addition to the minimum standard listed above. This results in higher standards for temperature and dissolved oxygen levels.

18. WATERCRAFT CONTROLS

High speed operation of motorized watercraft can result in resource damage due to erosion cause by wakes and property damage to docks and other stream-side structures, and can be a safety hazard for riverfront property owners, wading anglers and operators of other watercraft. Therefore, **watercraft control ordinances implementing a "no-wake" zone on all segments of the Pine River system should be developed**.

Local units of government that believe that special local "no-wake" ordinances authorized by the Marine Safety Act are needed on waters subject to their jurisdiction should inform MDNR Law Enforcement Division and request assistance. All such requests must be in the form of a resolution approved by the governing body of the local unit of government.

19. FISHERIES DIVISION MANISTEE RIVER ASSESSMENT

MDNR Fisheries Division completed a Manistee River Assessment in June 1998 that includes the Pine River system as the major Manistee River tributary. The assessment provides:

a. An organized approach to identifying opportunities and solving problems.
b. A mechanism for public involvement in fishery management decisions.
c. An organized reference for Fisheries Division personnel, other agencies and citizens.

In addition to being a separate document for fisheries management purposes, the assessment will be considered a companion document to the Pine River Natural River Plan. The assessment contains much detailed information regarding fisheries populations, past and

present management activities and background information on the watershed. Much of the watershed background information in this plan was taken from the assessment.

The assessment also contains many options related to fisheries management in the watershed. Most of the options meet the goals and objectives of Natural River designation. However, if an option is selected that is in conflict with the goals of Natural Rivers Part 305 and this Natural River Plan, that option shall not be implemented without the approval of the DNR Director.

F. *ADMINISTRATION AND IMPLEMENTATION*

1. DESIGNATION

Designation of a Natural River involves several steps, including:

a. Development of a draft Natural River Management Plan
b. Presentation of the draft plan at public hearings
c. Revision of the draft plan based on public comments, as appropriate
d. Approval of a final Natural River Plan by the Director of the Department of Natural Resources

The Department of Natural Resources, with the help of the Pine River Citizens Advisory Group, developed this draft plan over a four-year period. The draft plan will be presented at public hearings in each of the four counties potentially affected by the designation. Upon completion of those hearings, and incorporation of appropriate public comments in the plan, a final plan will be presented to the DNR Director for approval. Upon approval by the Director, the Pine River is officially a designated Natural River.

2. PLAN IMPLEMENTATION FOR PUBLIC LAND AND UTILITIES

Upon adoption of this plan by the DNR Director**, State lands must be managed in accordance with the plan and State management of fisheries, streams, waters, wildlife and boating must take cognizance of the plan.** Also, utilities and publicly provided facilities such as roads, water projects and others, except those within the boundaries of an incorporated municipality, must be constructed and managed in accordance with the Rules for Utilities and Publicly Provided Facilities promulgated under provisions of section 30514 of Natural Rivers Part 305 of 1994 PA 451 (see appendix B).

3. PLAN IMPLEMENTATION FOR PRIVATE LAND

a. <u>Zoning ordinances and rules</u>

Local units of government that have designated Natural Rivers within their boundaries may choose to adopt new zoning ordinances or amend existing zoning ordinances to incorporate the private land development standards included in this plan. **They are not required to do**

so. If, after one year from the date of Natural River Plan adoption, all affected townships and/or counties do not have a Natural River zoning ordinance in effect, **the State may adopt State Natural River Zoning Rules. These rules will only apply in areas where a township or county has not adopted a zoning ordinance that incorporates the standards in the plan**. The State rules will have the effect of creating a partial zoning ordinance in units of government that do not currently have an ordinance, or an overlay zoning district in units of government that currently have zoning. **Natural Rivers Part 305 prohibits the application of State zoning rules within incorporated municipalities,** such as villages and cities.

A local unit of government may adopt a Natural River zoning ordinance at any time, whether or not State zoning rules have been adopted. **If an acceptable local zoning ordinance is adopted, State zoning rules will not apply in that unit of government**. Local units of government may also adopt zoning standards that are more restrictive than those recommended in this plan.

b. Variances/appeals

A property owner may request a variance from a zoning standard in a locally zoned Natural River District from the local unit of government's zoning board of appeals.

A property owner may request a minor variance to a dimensional standard in a State-zoned area from the State Natural Rivers Zoning Administrator for the Pine River. Other dimensional variances and land use variances may be requested from the Pine River State Natural River Zoning Review Board. This Board will consist of local citizens representing local government and citizens groups, with one local DNR staff person serving on the board. The board will act on all major variance requests and special use permit applications ***in State-zoned areas of the watershed***. **The State Zoning Administrator and State Zoning Review Board do not act on variance requests from within local units of government that have adopted a local Natural River zoning ordinance.**

If a property owner is not satisfied with the decision of the Pine River State Zoning Review Board, he/she may file a Petition for Contested Case Hearing under provisions of the Administrative Procedures Act, 1969 PA 306, as amended.

4. COORDINATION WITH OTHER PUBLIC AGENCIES

Many decisions affecting resource management in the Pine River area are made by agencies other than MDNR and local government. The Michigan Department of Transportation (MDOT), Michigan Department of Environmental Quality (MDEQ), US Forest Service (USFS) and US Fish and Wildlife Service (USFWS) all play an active role in determining how resources will be managed or affected in the watershed. Although all are subject to the provisions of the Rules for Utilities and Publicly Provided Facilities (see 2. above), these rules frequently lack details regarding coordination between agencies and other aspects of

plan administration. Accordingly, **MDNR will pursue development of Memoranda of Understanding (MOU) with these agencies for the following purposes:**

MDNR/MDOT: An MOU to provide a mechanism for the earliest possible review of transportation projects planned for construction in the watershed, ensuring that the unique characteristics of the river system will be considered during the transportation planning process.

MDNR/MDEQ: An MOU to provide for consideration of the use and development standards in the Pine River Natural River Plan during the review process for various land/water interface permits, surface and ground water quality issues and mineral exploration and development issues addressed by MDEQ Divisions.

MDNR/USFS: An MOU to ensure that management of State and Federal lands and programs is in conformance with the provisions of this Plan, the Federal Pine River Wild and Scenic River Management Plans and management plans for other USFS lands in the river corridor.

MDNR/USFWS: An MOU to ensure that management of State and Federal lands and programs is in compliance with the provisions of this Plan and Federal statutes including the Endangered Species Act and the Federal Aid in Wildlife Restoration Act and any associated management plans.

Table 1. -Archaeological sites in the Pine River watershed, listed by township. Information provided by Barbara Mead, Michigan Department of State, Archaeological Section.

County	Township	Number of sites
Lake	Dover	8
	North Newkirk	1
Manistee	Norman	20
Osceola	Rose Lake	1
Wexford	Clam Lake	5
	Cherry Grove	9
	Henderson	26
	South Branch	27
Total		**97**

Table 2.–List of fishes in the Pine River Watershed. Compiled by G.R. Smith, University of Michigan and Tom Rozich, Michigan Department of Natural Resources, Fisheries Division.

Origin: N = Native; C= Colonized, O = Extirpated, I = Introduced Status: P = Recent Observation, U = Historic Record, Current Status Unknown

Common name	Scientific name	Origin	Pine status
Lampreys			
Chestnut lamprey	*Ichthyomyzon castaneus*	N	P
Northern brook lamprey	*Ichthyomyzon fossor*	N	P
American brook lamprey	*Lampetra appendix*	N	P
~~Sea lamprey~~	~~*Petromyzon marinus*~~	~~C~~	~~P~~
~~**Sturgeon**~~			
~~Lake sturgeon~~	~~*Acipenser fulvescens*~~	~~N~~	~~P~~
Gars			
Longnose gar	*Lepisosteus osseus*	N	P
Bowfin			
Bowfin	*Amia calva*	N	P
Herrings			
Alewife	*Alosa pseudoharengus*	C	P
Gizzard shad	*Dorosoma cepedianum*	N	P
Minnows			
Central stoneroller	*Campostoma anomalum*	I	P
Lake chub	*Couesius plumbeus* (rare)	N	P
Spotfin shiner	*Cyprinella spilotera*	N	P
Common carp	*Cyprinus carpio*	I	P
Brassy minnow	*Hybognathus hankinsoni*	N	P
Common shiner	*Luxilus cornutus*	N	P
Pearl dace	*Margariscus margarita*	N	P
Hornyhead chub	*Nocomis biguttatus*	N	P
River chub	*Nocomis micropogon*	N	P
Golden shiner	*Notemigonus crysoleucas*	N	P
Pugnose shiner	*Notropis anogenus* (rare)	N	U
Emerald shiner	*Notropis atherinoides*	N	P
Blacknose shiner	*Notropis heterolepis*	N	P
Blackchin shiner	*Notropis heterodon*	N	P
Spottail shiner	*Notropis hudsonius*	N	P
Rosyface shiner	*Notropis rubellus*	N	P
Sand shiner	*Notropis stramineus*	N	P
Mimic shiner	*Notropis volucellus*	N	P
Northern redbelly dace	*Phoxinus eos*	N	P
Finescale dace	*Phoxinus neogaeus*	N	P
Bluntnose minnow	*Pimephales notatus*	N	P

Table 2.–Continued.

Common name	Scientific name	Origin	Pine status
Minnows continued			
Fathead minnow	*Pimephales promelas*	N	P
Blacknose dace	*Rhinichthys atratulus*	N	P
Longnose dace	*Rhinichthys cataractae*	N	P
Creek chub	*Semotilus atromaculatus*	N	P
Suckers			
Quillback carpsucker	*Carpiodes cyprinus*	N	P
Longnose sucker	*Catostomus catostomus*	N	P
White sucker	*Catostomus commersoni*	N	P
Northern hogsucker	*Hypentelium nigricans*	N	P
Silver redhorse	*Moxostoma anisurum*	N	P
Golden redhorse	*Moxostoma erythrurum*	N	P
Shorthead redhorse	*Moxostoma macrolepidotum*	N	P
Greater redhorse	*Moxostoma valenciennesi*	N	P
Catfishes			
Black bullhead	*Ameiurus melas*	N	P
Yellow bullhead	*Ameiurus natalis*	N	P
Brown bullhead	*Ameiurus nebulosus*	N	P
Channel catfish	*Ictalurus punctatus*	N	P
Tadpole madtom	*Noturus gyrinus* (rare)	N	U
Pikes			
Northern pike	*Esox lucius*	N	P
Great Lakes muskellunge	*Esox masquinongy*	N	P
Northern muskellunge	*Esox masquinongy*	I	P
Tiger muskie	*Esox masquinongy X Esos lucius*	I	P
Mudminnows			
Central mudminnow	*Umbra limi*	N	P
Smelt			
rainbow smelt	*Osmerus mordax*	I	P
Salmons			
Lake herring (cisco)	*Coregonus artedi*	N	P
Lake whitefish	*Coregonus clupeaformis*	N	P
~~Pink salmon~~	~~*Oncorhynchus gorbuscha*~~	~~C~~	~~P~~
~~Coho salmon~~	~~*Oncorhynchus kisutch*~~	~~I~~	~~P~~
Rainbow trout ~~(steelhead)~~	*Oncorhynchus mykiss*	I	P
~~Chinook salmon~~	~~*Oncorhynchus tshawytscha*~~	~~I~~	~~P~~

Table 2–Continued.

Common name	Scientific name	Origin	Pine status
Salmons continued			
Round whitefish	*Prosopium cylindraceum*	N	P
Brown trout	*Salmo trutta*	I	P
Brook trout	*Salvelinus fontinalis*	N/C	P
~~Lake trout~~	~~*Salvelinus namaycush*~~	~~N~~	~~P~~
~~Splake~~	~~*Salvelinus fontinalus X Salvelinus namaycush*~~	~~I~~	~~P~~
Grayling	*Thymallus tricolor*	O	
Trout-perches			
Trout perch	*Percopsis omiscomaycus*	N	P
Cod			
Burbot	*Lota lota*	N	P
Killifishes			
Banded killifish	*Fundulus diaphanus*	N	P
Silverside			
Brook silverside	*Labidesthes sicculus*	N	P
Sticklebacks			
Brook stickleback	*Culaea inconstans*	N	P
Ninespine stickleback	*Pungitius pungitius*	N	P
Sculpins			
Mottled sculpin	*Cottus bairdi*	N	P
Slimy sculpin	*Cottus cognatus*	N	P
Temperate basses			
White bass	*Morone chrysops*	N	U
Sunfishes			
Rock bass	*Ambloplites rupestris*	N	P
Green sunfish	*Lepomis cyanellus*	N	P
Pumpkinseed sunfish	*Lepomis gibbosus*	N	P
Bluegill	*Lepomis macrochirus*	N	P
Longear sunfish	*Lepomis megalotis*	N	P
Smallmouth bass	*Micropterus dolomieui*	N	P
Largemouth bass	*Micropterus salmoides*	N	P
Black crappie	*Pomoxis nigromaculatus*	N	P

Table 2.–Continued.

Common name	Scientific name	Origin	Pine status
Perches			
Rainbow darter	*Etheostoma caeruleum*	N	P
Iowa darter	*Etheostoma exile*	N	P
Johnny darter	*Etheostoma nigrum*	N	P
Yellow perch	*Perca flavescens*	N	P
Logperch	*Percina caprodes*	N	P
Blackside darter	*Percina maculata*	N	P
Walleye	*Stizostedion vitreum*	N	P
Drums			
Freshwater drum (sheepshead)	*Aplodinotus grunniens*	N	P

Table 3.–Non-indigenous fish species in the Pine River Watershed. Michigan Department of Natural Resources, Fisheries Division.

Common name	**Scientific name**
~~Sea lamprey~~	~~*Petromyzon marinus*~~
~~Alewife~~	~~*Alosa pseudoharengus*~~
Common carp	*Cyprinus carpio*
Northern muskellunge	*Esox masquinongy*
Tiger muskie	*Esox masquinongy X Esox lucius*
Rainbow smelt	*Osmerus mordax*
~~Chinook salmon~~	~~*Oncorhynchus tshawytscha*~~
~~Coho salmon~~	~~*Oncorhynchus kitsutch*~~
~~Pink salmon~~	~~*Oncorhynchus gorbuscha*~~
Rainbow trout	*Oncorhynchus mykiss*
Brown trout	*Salmo trutta*
~~Splake~~	~~*Salvelinus fontinelus X Savelinus namaycush*~~
Central stoneroller	*Campostoma anomalum*

Table 4.–Natural features of the Upper Manistee River Watershed (MDNR, Wildlife Division, Natural Features Inventory, 1999). Type: A = Vertebrate Animal; C = Natural Community; G = Geographic Feature; I = Invertebrate Animal; O = Other; P = Plant. State Status: E = Endangered; T = Threatened; SC = Special Concern; Federal Status: LE = Listed endangered; LT = Listed threatened; LELT = Partly listed endangered and partly listed threatened; PDL = Proposed delist; E(S/A) = Endangered based on similarities/appearance; PS = Partial status (Federally listed in only part of its range).

Wexford County

TYPE	SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS
A	Accipiter gentilis	Northern goshawk		SC
C	Bog			
A	Buteo lineatus	Red-shouldered hawk		T
A	Clemmys insculpta	Wood turtle		SC
C	Emergent marsh			
A	Emydoidea blandingii	Blanding's turtle		SC
A	Gavia immer	Common loon		T
O	Great blue heron rookery	Great blue heron rookery		
A	Haliaeetus leucocephalus	Bald eagle	(PS)	T
C	Hardwood-conifer swamp			
G	Kame	Geographical feature		
C	Landscape complex			
A	Martes americana	American marten		SC
P	Mertensia virginica	Virginia bluebells		T
C	Mesic northern forest			
C	Muskeg	Scrub bog, upper midwest type		
C	Northern wet meadow	Wet meadow, upper midwest type		
P	Panax quinquefolius	Ginseng		T
A	Pandion haliaetus	Osprey		T
C	Pine barrens	Barrens, upper midwest type		
C	Poor conifer swamp			
C	Rich conifer swamp			
C	Submergent marsh			
A	Terrapene carolina carolina	Eastern box turtle		SC

Osceola County

TYPE	SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS
A	Asio flammeus	Short-eared owl		E
A	Clemmys insculpta	Wood turtle		SC
A	Emydoidea blandingii	Blanding's turtle		SC
A	Gavia immer	Common loon		T
O	Great blue heron rookery	Great blue heron rookery		
G	Kettle	Geographical feature		
A	Pandion haliaetus	Osprey		T

Table 4 (cont.)

Manistee County

TYPE	SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS
A	Accipiter cooperii	Cooper's hawk		SC
A	Accipiter gentilis	Northern goshawk		SC
A	Acipenser fulvescens	Lake sturgeon		T
G	Bluff	Geographical feature		
C	Bog			
A	Buteo lineatus	Red-shouldered hawk		T
O	Champion tree	American beech (fagus grandifolia)		
A	Circus cyaneus	Northern harrier		SC
P	Cirsium pitcheri	Pitcher's thistle	LT	T
A	Clemmys insculpta	Wood turtle		SC
A	Coregonus artedi	Cisco or lake herring		T
C	Dry-mesic northern forest			
C	Emergent marsh			
A	Emydoidea blandingii	Blanding's turtle		SC
A	Gavia immer	Common Loon		T
O	Great blue heron rookery	Great blue heron rookery		
C	Great lakes marsh			
A	Haliaeetus leucocephalus	Bald eagle	(PS)	T
P	Hemicarpha micrantha	Dwarf-bulrush		SC
C	Intermittent wetland	Infertile pond/marsh, great lakes type		
C	Inundated shrub swamp	Shrub swamp, central midwest type		
A	Lanius ludovicianus migrans	Migrant loggerhead shrike		E
P	Lechea minor	Least pinweed		SC
A	Martes americana	American marten		SC
C	Mesic northern forest			
A	Myotis sodalis	Indiana bat or indiana myotis	LE	E
C	Northern wet meadow	Wet meadow, upper midwest type		
A	Notropis anogenus	Pugnose shiner		SC
C	Oak-pine barrens			
C	Open dunes	Beach/shoredunes, great lakes type		
P	Orobanche fasciculata	Fascicled broom-rape		T
P	Panax quinquefolius	Ginseng		T
A	Pandion haliaetus	Osprey		T
I	Pomatiopsis cincinnatiensis	Brown walker		SC
C	Poor conifer swamp			
P	Prunus alleghaniensis var davisii	Alleghany or sloe plum		SC
A	Rallus elegans	King rail		E
C	Rich conifer swamp			
A	Sistrurus catenatus catenatus	Eastern massasauga		SC
C	Southern floodplain forest			
C	Southern swamp			
C	Submergent marsh			
A	Terrapene carolina carolina	Eastern box turtle		SC
I	Trimerotropis huroniana	Lake huron locust		T
P	Zizania aquatica var aquatica	Wild-rice		T

Table 4 (cont.)

Lake County

TYPE	SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS
A	Accipiter gentilis	Northern goshawk		SC
A	Acris crepitans blanchardi	Blanchard's cricket frog		SC
C	Bog			
A	Buteo lineatus	Red-shouldered hawk		T
O	Champion tree	Larch, tamarack (larix laricina)		
P	Cirsium hillii	Hill's thistle		SC
A	Clemmys guttata	Spotted turtle		T
A	Clemmys insculpta	Wood turtle		SC
C	Dry sand prairie	Dry sand prairie, midwest type		
C	Dry-mesic northern forest			
P	Eleocharis engelmannii	Engelmann's spike-rush		SC
P	Eleocharis melanocarpa	Black-fruited spike-rush		SC
I	Fontigens nickliniana	Watercress snail		SC
A	Gavia immer	Common loon		T
O	Great blue heron rookery	Great blue heron rookery		
A	Haliaeetus leucocephalus	Bald eagle	(PS)	T
P	Hemicarpha micrantha	Dwarf-bulrush		SC
C	Intermittent wetland	Infertile pond/marsh, great lakes type		
I	Lycaeides melissa samuelis	Karner blue	LE	T
A	Martes americana	American marten		SC
C	Mesic sand prairie	Moist sand prairie, midwest type		
C	Oak-pine barrens			
C	Pine barrens	Barrens, upper midwest type		
P	Poa paludigena	Bog bluegrass		T
C	Poor conifer swamp			
P	Prunus alleghaniensis var davisii	Alleghany or sloe plum		SC
P	Rhynchospora macrostachya	Tall beak-rush		SC
C	Rich conifer swamp			
P	Rotala ramosior	Tooth-cup		SC
A	Sistrurus catenatus catenatus	Eastern massasauga		SC
C	Southern floodplain forest			
C	Southern swamp			
I	Stenelmis douglasenesis	Douglas stenelmis riffle beetle		SC
A	Terrapene carolina carolina	Eastern box turtle		SC

Table 5.–List of amphibians and reptiles in the Pine River watershed, that require the aquatic environment information provided by Greg Schneider, University of Michigan.

Common name	Scientific name
Salamanders	
spotted salamander	*Ambystoma maculatum*
blue-spotted hybrid	*Ambystoma laterale*
tiger salamander	*Ambystoma tigrinum*
four-toed salamander	*Hemidactylium scutatum*
mudpuppy	*Necturus maculosus*
red-spotted newt	*Notophthalmus viridescens*
red-backed newt	*Plethodon cinereus*
Lizards	
five-lined skink	*Eumeces fasciatus*
Frogs	
American toad	*Bufo americanus*
Fowler's toad	*Bufo woodhousii*
spring peeper	*Hyla crucifer*
gray tree frog	*Hyla chrysoscelis*
chorus frog	*Pseudacris triseriata*
bullfrog	*Rana catesbeiana*
green frog	*Rana clamitans*
pickeral frog	*Rana palustris*
leopard frog	*Rana pipiens*
wood frog	*Rana sylvatica*
Turtles	
softshell	*Apalone spinifera*
snapping turtle	*Chelydra serpentina*
painted turtle	*Chrysemys picta*
spotted turtle	*Clemmys guttata*
wood turtle	*Clemmys insculpta*
Blanding's turtle	*Emydoidea blandingii*
map turtle	*Graptemys geographica*
eastern box turtle	*Terrapene carolina*
Snakes	
northern black racer	*Coluber constrictor*
ringneck snake	*Diadophis punctatus*
hognose snake	*Heterodon platyrhinos*
milk snake	*Lampropeltis triangulum*
water snake	*Nerodia sipedon*
smooth green snake	*Opheodrys vernalis*
queen snake	*Regina septemuittata*
massasauga	*Sistrurus catenatus*
brown snake	*Storeria dekayi*
red-bellied snake	*Storeria occipitomaculata*
ribbon snake	*Thamnophis sauritus*
garter snake	*Thamnophis sirtalis*

Table 6.–Land ownership within the Pine River corridor in acres (U.S. Forest Service Manistee River Wild & Scenic River Study Report (1983), MDNR Real Estate Division and Consumers Energy Co. Manistee River Land Management Plan (1995))

Segment	Private	State	Federal	Total
Pine River	8,633(64%)	660(5%)	4,120(31%)	13,415

Table 7.–Pine River mainstreams - existing campground & access facilities (U.S. Forest Service Manistee River Wild & Scenic Study Report).

Location Sites	Road R-O-W	Developed Site	County	Private	State	US FS	Number of Campsites
Access 67-1		X			X		
Access 67-5		X			X		
Lakola Road	X		X		X		
Edgetts Bridge		X					
Meadow Brook Bridge		X			X		
Skookum Bridge (2)		X			X		
Walker Bridge	X				X		
Hi School Bridge	X		X				
Silver Creek Campground		X			X		
Lincoln Bridge Campground		X			X		
Elm Flats		X				X	
Dobson Bridge		X				X	
Peterson Access		X				X	
Peterson Bridge		X			X		
Skookum Bridge	X				X		

Table 8.–Dam inventory, Pine River system. Data from Land and Water Management Division, Michigan Department of Environmental Quality.

Dam Name	County	Section	Town	Range	River	Head	Acre Ft.
Crystal Springs Trout Ranch Dam	Lake	3	19N	11W	Unnamed trib to Pine R	7	
Streator Dam	Lake	16	20N	11W	Silver Ck.		
Prunski Dam	Manistee	27	21N	13W	Trib. Pine R.		16
Stronach Dam	Manistee	16	21N	13W	Pine River	18	180
Sunnybrook Dam	Manistee	32	21N	13W	Pine River		
Hatt Dam	Osceola	19	19N	10W	Little Beaver Ck.	4	10
Barztel Dam	Osceola	6	19N	10W	Trib. Pine River		
Malstrom Dam	Wexford	35	21N	10W	Trib. N. Br. Pine	5	5
Norman Smith Dam	Wexford	23	21N	10W	Trib. Spaulding Ck.	16	105
Korr Dam	Wexford	23	21N	12W	Yates Ck.	6	
Carlson Dam #2	Wexford	22	21N	12W	Yates Ck.	8	
Olga Lake Dam	Wexford	36	22N	11W	Coe Ck.	5	145

Table 9.–Sites of environmental contamination in the Pine River watershed by county (1998) (Michigan Department of Environmental Quality, Environmental Response Division and Storage Tank Division).

County	Oil & gas related	Storage tanks	Industry	Other	Unknown	Total
Lake	--	--	--	--	1	1
Manistee	23	26	8	18	9	84
Osceola	--	4	--	--	1	5
Wexford	7	17	1	7	1	33
Totals	**30**	**47**	**9**	**25**	**12**	**123**

Table 10.–Statutes administered by Michigan Department of Environmental Quality, Land and Water Management Division, that affect the aquatic resource.

State of Michigan Acts:	Public Health Code (1978 PA 386 - Aquatic Nuisance Control)
	Inland Lake Levels (Part 307, 1994 PA 451)
	Floodplain Regulatory Authority (Part 13, 1994 PA 451)
	Wetland Protection (Part 303, 1994 PA 451)
	Irrigation Districts (Part 341, 1994 PA 451)
	Shorelands Protection & Management (Part 323, 1994 PA 451)
	Great Lakes Submerged Lands (Part 325, 1994 PA 451)
	Dam Safety (Part 315, 1994 PA 451)
	Inland Lake Improvements (Part 309, 1994 PA 451)
	Inland Lakes and Streams (Part 301, 1994 PA 451)
	Soil Erosion & Sedimentation Control (Part 91, 1994 PA 451)
Federal Acts:	Federal Water Pollution Control Act, Section 314 (PL 92-55)
	Coastal Zone Management Act (PL 92-583, 1972)
	Clean Water Act, Section 404 (PL 95-217)
	River and Harbor Act, Section 10 (1899)
	Coastal Energy Impact Program (PL 92-538)

Table 11. Pine River access sites between Edgetts and Lincoln Bridge (inventory and recommendations by the Pine River Citizens Advisory Group)

Site	Township/Section	Current Use	Recommendations
Edgetts	Ellsworth/2	4 campsites Canoe access	Continue present uses
Pucklebrush	Ellsworth/3	Road to river's edge Informal camp/canoe Access	Block road w/in 150 ft. of river No camping w/in 150 ft. of river Canoe access by footpath
Six Mile Trail 1	Ellsworth/3	Steep, rutted 2-track to river	Block road w/in 150 ft. of river No camping w/in 150 ft. of river
Six Mile Trail 2	Ellsworth/3	Road to river's edge Informal camp/canoe access	Block road w/in 150 ft. of river No camping w/in 150 ft. of river
Meadowbrook Bridge	Ellsworth/4	Fishing/canoe access New bridge	Continue present uses
State Forty	Ellsworth/4	Closed to vehicles No camping allowed	If campground is built, small number of primitive sites with canoe access.
North side below Coe Creek	Dover/33	Road to river's edge Informal camp/access	Block road w/in 150 ft. of river No camping w/in 150 ft. of river
Skookum North	Dover/32	4 campsites Canoe/fishing access	Continue present uses, but no commercial watercraft access
Skookum South	Dover/32	4 campsites Canoe/fishing access	Continue present uses
Silver Creek Campground	North Newkirk/13, 24	25 campsites Canoe access for Campers	Continue present uses
West side below Silver Creek	North Newkirk/13	Road to river's edge bluff - informal camp/access	Block road w/in 150 ft. of river No camping w/in 150 ft. of river
ORV trail Lincoln Bridge to Silver Creek	North Newkirk/12, 13	ORV trail Occasional camping	No camping w/in 150 ft. of river

Table 12 (continued).

Site	Township/Section	Current Use	Recommendations
Lincoln Bridge Campground	North Newkirk/12	10 site campground Canoe access	Continue present uses
Lincoln Bridge West	North Newkirk/12	Road to river at foot bridge – river access, occasional camping	Block road w/in 150 ft. of river No camping w/in 150 ft. of river
West side Below Lincoln Bridge	North Newkirk/12	2-track to river's edge bluff – river access, occasional camping	Block road w/in 150 ft. of river No camping w/in 150 ft. of river